STR-GX215/GX315/GX415

SERVICE MANUAL

AEP Model
STR-GX215/GX315/GX415

East European Model
STR-GX215/GX315

UK Model
STR-GX315

PHOTO: STR-GX415

SPECIFICATIONS

Amplifier section

		STR-GX415	STR-GX315	STR-GX215
AEP1, German, East European, UK model	DIN, IkHz	90W+90W (4ohms) 80W+80W (8ohms)	80W+80W (4ohms) 70W+70W (8ohms)	70W+70W (4ohms) 50W+50W (8ohms)
AEP2 model	DIN, IkHz	80W+80W (8ohms)	70W+70W (8ohms)	50W+50W (8ohms)
	40Hz–20kHz THD 0.3%		65W+65W (8ohms) (UK only)	

Harmonic distortion
Less than 0.8% at rated output
Frequency response
PHONO: RIAA equalization curve ±0.5dB
CD, VIDEO, TAPE: 10Hz–50kHz $^{+0}_{-3}$ dB

Input

	Sensitivity	Impedance	S/N (weighting network, input level)
PHONO	2.5mV	50kilohms	75dB(A net) 75dB*(A net, 5.0 mV)
CD, VIDEO, TAPE 1, 2	250mV	50kilohms	82dB (A net) 82dB*(A net 500mV)

*78 IHF

Outputs

REC OUT, VIDEO (AUDIO) OUT	Voltage 250mV Impedance 10kilohms
HEADPHONES	Accepts low and high impedance headphones

Tone controls
BASS: ±10dB at 100Hz
TREBLE: ±10dB at 10kHz
Loudness
+6dB (100Hz)

Tuner section

	FM tuner section	AM tuner section
Tuning range	87.5–108MHz	531–1602kHz
Antenna	75ohms, unbalanced	External antenna terminal
Sensitivity at 41dB quieting	18.3dBf, 2.2µV (mono) 40dBf, 24.5µV (stereo)	—
Usable sensitivity	11.2dBf, 1µV (IHF)	Loop antenna: 300µV (at 999kHz)
Signal-to-noise ratio	70dB (mono)/66dB (stereo)	54dB (at 50mV/m)
Harmonic distortion	0.3% (mono), 0.5% (stereo) at 1kHz	0.5% (at 50mV/m, 400 Hz)
Selectivity	60dB at 400kHz	30dB at 10kHz
Separation	45dB at 1kHz	—
Frequency response	30Hz—15kHz $^{+0.5}_{-2}$ dB	—

General
System
Tuner section: PLL quartz-locked digital synthesizer system
Preamplifier section: low-noise NF type equalizer amp
Power amplifier section: pure complementary SEPP
Power requirements
220–230V AC, 50/60Hz
240V AC, 50/60Hz (U.K. model)
Power consumption

	STR-GX415	STR-GX315	STR-GX215
AEP1, German model	230W	200W	160W
AEP2, East European, UK model	165W	130W	110W

—Continued on next page—

FM Stereo
FM-AM Receiver

SONY®

MICROFILM

AC outlet (STR-GX415/STR-GX315)
(except for U.K. model of STR-GX315)
One switched (100W Max.)
Dimensions
Approx. 430 × 135 × 300mm (w/h/d)
(17 × 5 3/8 × 11 7/8 inches)
including projecting parts and controls
Weight
STR-GX415: Approx. 7.2kg (15lb 14oz)
STR-GX315: Approx. 6.2kg (13lb 11oz)
STR-GX215: Approx. 5.9kg (13lb 1oz)
Accessories supplied
FM wire antenna (1)
AM loop antenna (1)
Remote Commander RM-U141
(STR-GX415/STR-GX315 only)(1)
Sony batteries SUM-3(NS)(2)

Design and specifications are subject to change without notice.

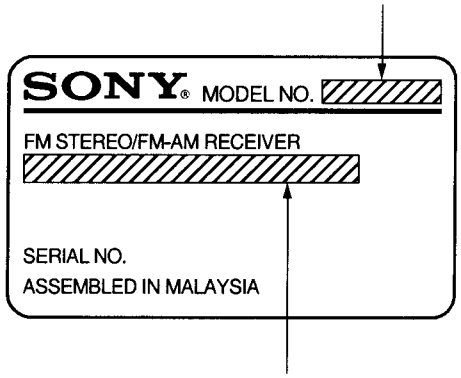
Note
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

MODEL IDENTIFICATION

— Model Number Portion —

Carved on back panel

AEP1, AEP2, German, East European model : STR-GX215
AEP1, AEP2, German, UK, East European model : STR-GX315
AEP1, AEP2, German model : STR-GX415



GX215; AEP1, German model : AC : 220—230V~50/60Hz 160W
GX215; AEP2, East European model: AC : 220—230V~50/60Hz 110W
GX315; AEP1, German model : AC : 220—230V~50/60Hz 200W
GX315; AEP2, East European model: AC : 220—230V~50/60Hz 130W
GX315; UK model : AC : 240V~50/60Hz
GX415; AEP1, German model : AC : 220—230V~50/60Hz 230W
GX415; AEP2 model : AC : 220—230V~50/60Hz 165W

Note:
There are two type of AEP models which are depend on countries.
AEP2 : Model for Scandinavian countries, Switzerland, Spain and Portugal.
AEP1 : Model for other European countries.

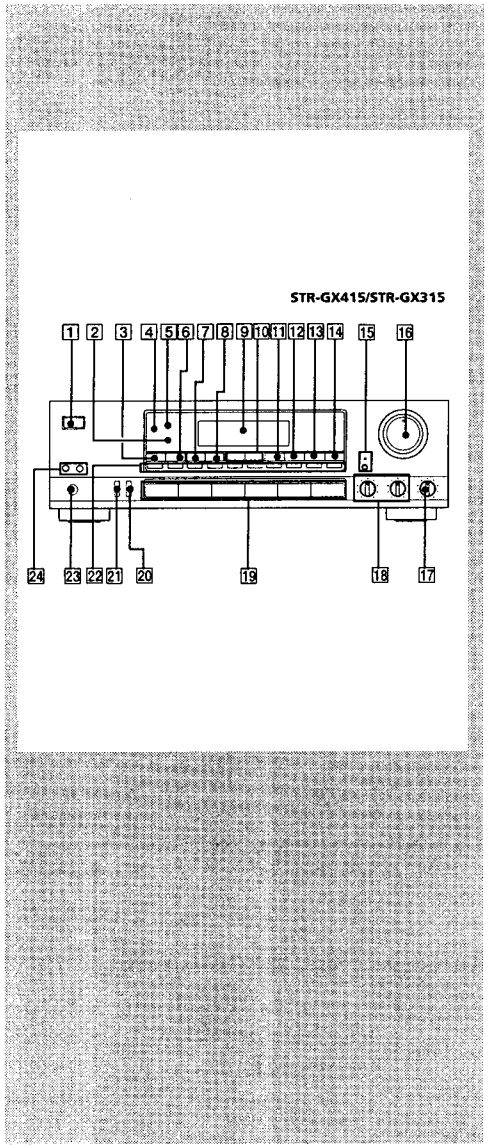
TABLE OF CONTENTS

Section	Title	Page
1.	GENERAL	3
2.	ELECTRICAL ADJUSTMENTS	4
3.	DIAGRAMS	
3-1.	IC Pin Function	
	• IC300 SYSTEM CONTROL IC(μPD78043GF-SOX4072)	5
3-2.	Block Diagram	7
3-3.	Circuit Boads Location	9
3-4.	Semiconductor Lead Layouts	10
3-5.	Schematic Diagram—Main(GX215) Section—	11
3-6.	Schematic Diagram—Main(GX315,GX415) Section—	15
3-7.	Printed Wiring Boards—Main Section—	19
3-8.	Printed Wiring Boards—Display Section—	25
3-9.	Schematic Diagram—Display Section—	27
4.	EXPLODED VIEWS	
4-1.	Cabinet Section	29
4-2.	Chassis Section	30
5.	ELECTRICAL PARTS LIST	31

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

This section is extracted from instruction manual.



Identifying Parts and Controls

Front Panel

STR-GX415/STR-GX315

1 POWER switch

2 MONITOR indicator (page 62.)

3 SHIFT button (pages 36 and 38.)

4 Remote sensor

5 STANDBY indicator
The STANDBY indicator lights up when the power cord is connected.

6 MEMORY button (pages 26 and 36.)

7 BAND button (pages 30 and 34.)

8 TUNING/PRESET button (pages 34 and 40.)

9 Display window

10 +/– buttons (pages 34 and 40.)

11 TUNING DIRECT button (page 30.)

12 FM MODE button (page 32.)

13 CHARACTER button (page 26.)

14 DISPLAY button (pages 28 and 48.)

15 LOUDNESS button and indicator (page 22.)

16 VOLUME control (page 22.)

17 BALANCE control (page 22.)

18 BASS/TREBLE controls (page 22.)

19 Function selectors
When the TAPE 2 MONITOR is pressed, the indicator of the last selected function also remains lit. But the taped program selected with the TAPE 2 MONITOR button can be heard.

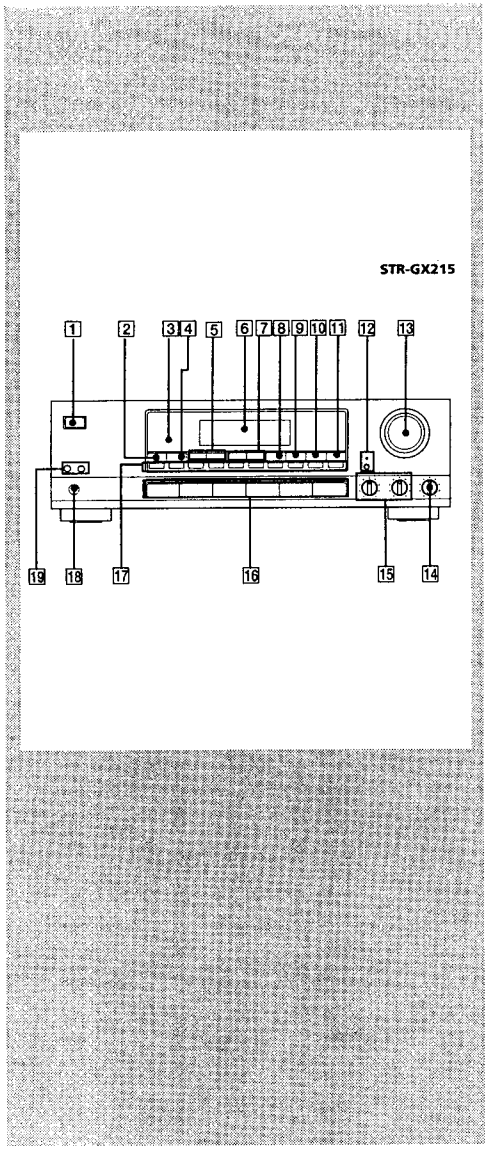
20 EON (TA-NEWS-INFO) button (page 50.)

21 PTY button (page 52.)

22 Numeric buttons (pages 30, 36 and 38.)

23 HEADPHONES jack (page 24.)

24 SPEAKERS A/B buttons (page 24.)



Identifying Parts and Controls

Front Panel

STR-GX215

1 POWER switch

2 SHIFT button (pages 36 and 38.)

3 MONITOR indicator (page 62.)

4 MEMORY button (pages 26 and 36.)

5 TUNING –/+ buttons (page 34.)

6 Display window

7 PRESET TUNING +/– buttons (page 40.)

8 FM button (pages 30 and 34.)

9 AM button (pages 30 and 34.)

10 TUNING DIRECT button (page 30.)

11 FM MODE button (page 32.)

12 LOUDNESS button and indicator (page 22.)

13 VOLUME control (page 22.)

14 BALANCE control (page 22.)

15 BASS/TREBLE controls (page 22.)

16 Function selectors
When the TAPE 2 MONITOR is pressed, the indicator of the last selected function also remains lit. But the taped program selected with the TAPE 2 MONITOR button can be heard.

17 Numeric buttons (pages 30, 36 and 38.)

18 HEADPHONES jack (page 24.)

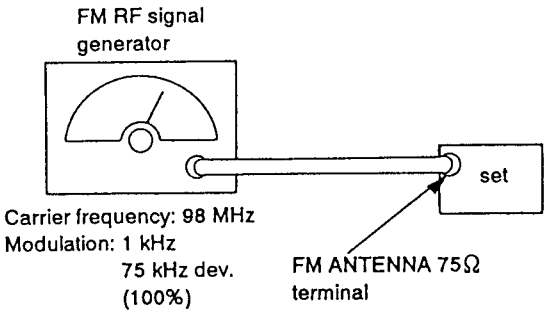
19 SPEAKERS A/B buttons (page 24.)

SECTION 2
ELECTRICAL ADJUSTMENTS

Note: As a FM/AM tuner (TU1) is difficult to repair if faulty, replace it with new one.

- **FM Signal Level Display Adjustment (GX315, GX415)**

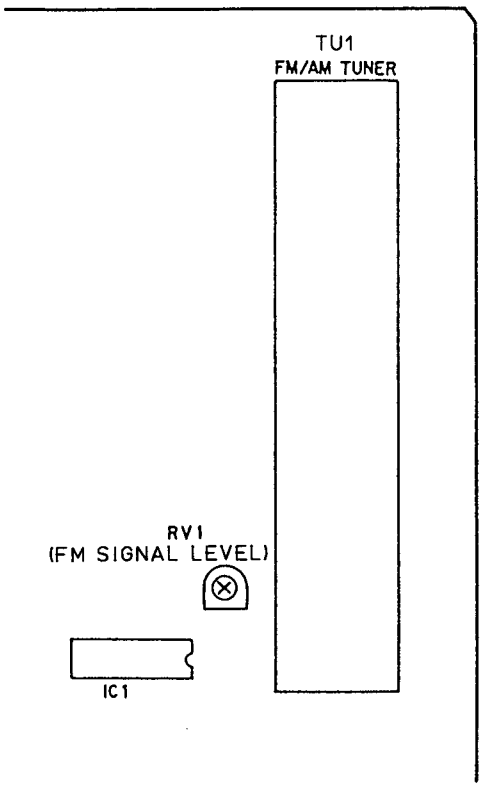
Setting:



Procedure:

1. Tune the set to 98 MHz.
2. Apply 80 dBμ, 98 MHz signal to the FM antenna terminal.
3. Press the DISPLAY button of the unit to indicate the signal level.
4. Adjust RV1 so that signal level indication is changed from [SIG 71 dB] to [SIG 75 dB]
5. Apply 81 dBμ, 98 MHz signal to the FM antenna terminal.
6. Make sure that the signal level indication is [SIG75▵dB]. If not, repeat step 2 to 6.

[MAIN BOARD] (COMPONENT SIDE)



SECTION 3
DIAGRAMS

3-1. IC PIN FUNCTION

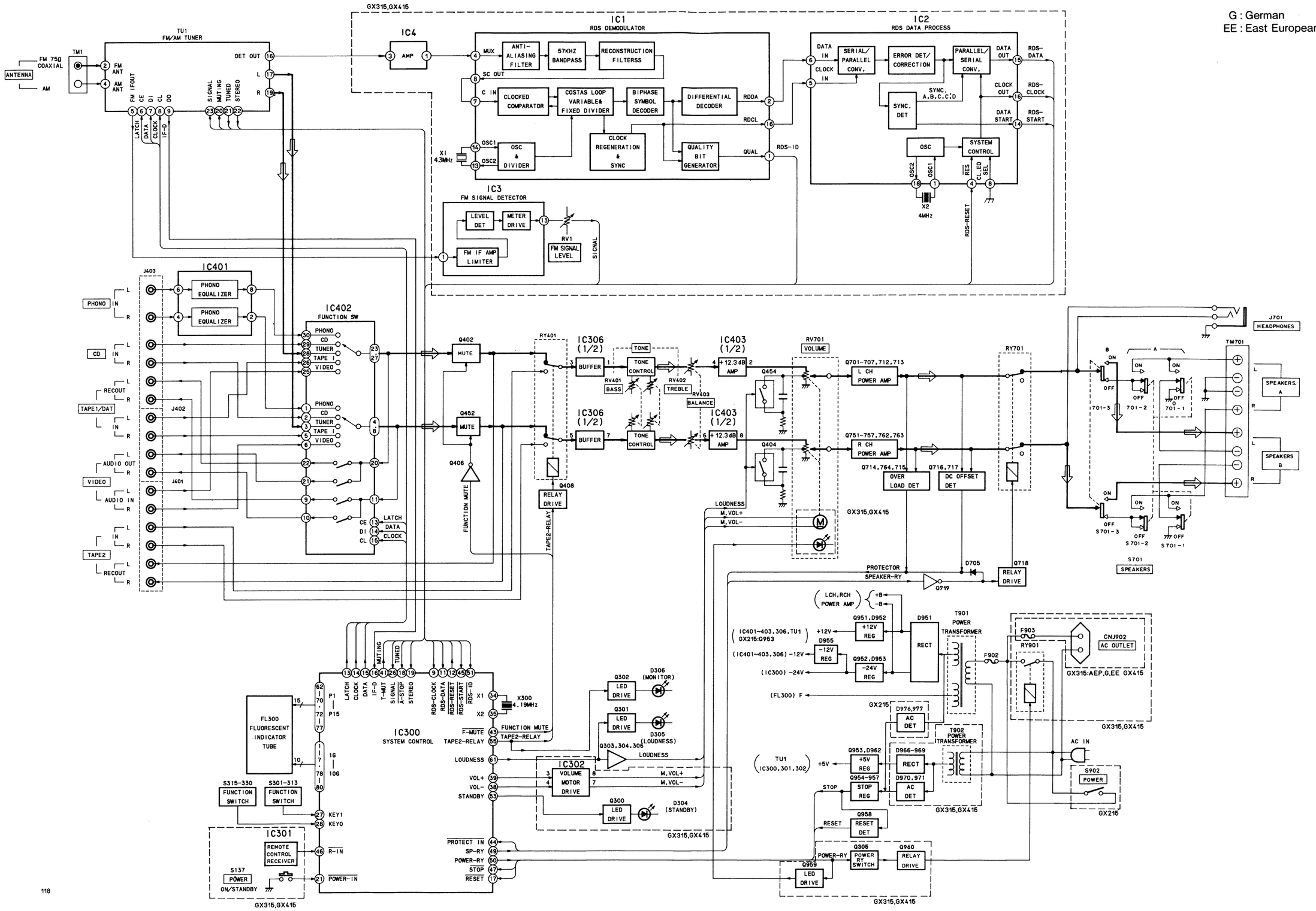
• IC300 SYSTEM CONTROL IC (μPD78043GF-SOX4072)

PIN No.	I/O	PIN NAME	FUNCTION
1	O	7G	Drives indicator tube.
2	O	6G	Drives indicator tube.
3	O	5G	Drives indicator tube.
4	O	4G	Drives indicator tube.
5	O	3G	Drives indicator tube.
6	O	2G	Drives indicator tube.
7	O	1G	Drives indicator tube.
8	–	VDD	5V
9	I	RDS-CLOCK	RDS CLOCK input.
10		NC	
11	I	RDS-DATA	RDS DATA input.
12	O	RDS-RESET	RESET output for LC7073M.
13	O	LATCH	FUNCTION output for tuner.
14	O	CLOCK	
15	O	DATA	
16		IF-D	IF COUNT DATA input.
17	I	$\overline{\text{RESET}}$	System RESET input.
18	I	$\overline{\text{A-STOP}}$	TUNED input.
19	I	$\overline{\text{STEREO}}$	"L" when STEREO is received.
20	–	GND	
21	I	$\overline{\text{POWER IN}}$	POWER ON/OFF input.
22	I	FUNC SEL	Fixed "L".
23	I	FUN 2	Input for detecting motor FUNCTION position.
24	I	FUN 1	Input for detecting motor FUNCTION position.
25	I	FUN 0	Input for detecting motor FUNCTION position.
26	I	SIGNAL	SIGNAL input.
27	I	KEY 1	KEY input port.
28	I	KEY 0	KEY input port.
29	–	A/D VDD	A/D converter power supply.
30	I	A/D REF	A/D converter power supply reference voltage.
31	–	GND	
32		NC	
33	–	GND	
34	I	X1	Oscillation signal input (4.19MHz).
35	O	X2	Oscillation signal output (4.19MHz).
36	O	FUN CCW	Operates the motor for motor FUNCTION.
37	O	FUN CW	Operates the motor for motor FUNCTION.
38	O	VOL–	Motor for VOL. "H" when DOWN.
39	O	VOL+	Motor for VOL. "H" when UP.
40	–	GND	

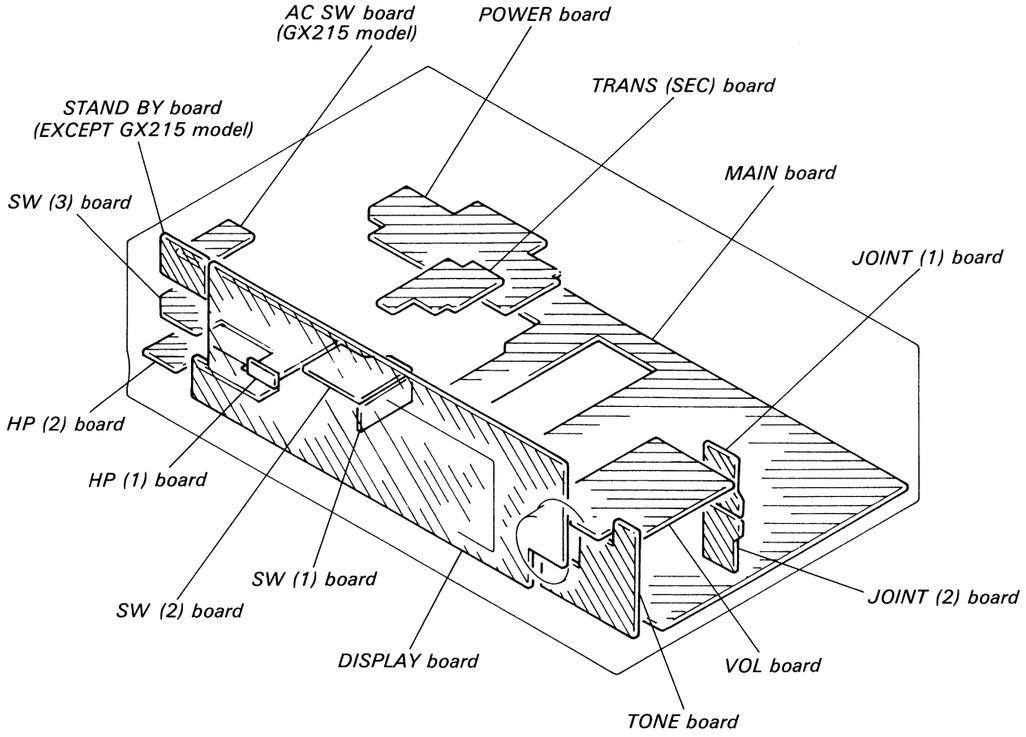
PIN No.	I/O	PIN NAME	FUNCTION
41	O	T-MUT	TUNER MUTE output.
42	O	$\overline{\text{P-MUT}}$	PROTECT MUTE output.
43	O	$\overline{\text{F-MUT}}$	FUNCTION MUTE output.
44	I	$\overline{\text{PROTECT IN}}$	PROTECT detection input.
45	I	$\overline{\text{RDS-START}}$	RDS DATA START pin.
46	I	$\overline{\text{R-IN}}$	Remote commander input.
47	I	$\overline{\text{STOP}}$	Power ON/OFF Monitor.
48		NC	Fixed "L".
49		SP-RY	Activates SPEAKER RELAY.
50	O	POWER RY	Activates POWER RELAY.
51	I	RDS-ID	RDS-ID detection input.
52	–	V_{DD}	5V
53	O	STANBY	Activates standby LED.
54	O	$\overline{\text{VOL-LED}}$	Activates VOL-LED.
55	O	TAPE2-RELAY	Activates TAPE 2 relay.
56	O	S-DIRECT-RELAY	Activates source direct relay.
57	I	S2	Destination change – over input "H" : East European "L" : AEP, G, UK
58	I	S1	Model change – over input "H" : GX215 "L" : GX315, GX415
59	–	S5	Fixed "L".
60	–	S4	Fixed "L".
61		LOUDNESS	LOUDNESS CONTROL output.
62	O	P15	Drives indicator tube.
63	O	P14	Drives indicator tube.
64	O	P13	Drives indicator tube.
65	O	P12	Drives indicator tube.
66	O	P11	Drives indicator tube.
67	O	P10	Drives indicator tube.
68	O	P9	Drives indicator tube.
69	O	P8	Drives indicator tube.
70	O	P7	Drives indicator tube.
71	–	– 24V	– 24V
72	O	P6	Drives indicator tube.
73	O	P5	Drives indicator tube.
74	O	P4	Drives indicator tube.
75	O	P3	Drives indicator tube.
76	O	P2	Drives indicator tube.
77	O	P1	Drives indicator tube.
78	O	10G	Drives indicator tube.
79	O	9G	Drives indicator tube.
80	O	8G	Drives indicator tube.

3-2. BLOCK DIAGRAM

G : German
EE : East European

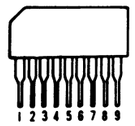


3-3. CIRCUIT BOARDS LOCATION

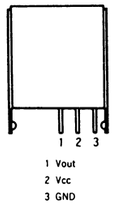


3-4. SEMICONDUCTOR LEAD LAYOUTS

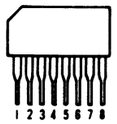
BA6208
μPC4570HA-1



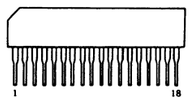
G1U58XB



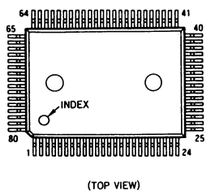
M5218AL



RBA-402

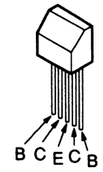


μPD78043GF-SOX4072

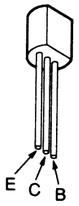


(TOP VIEW)

2SA979-FG

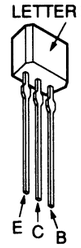


2SA988-PAFAEA

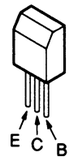


2SA1175-HFE
2SC2785-HFE
2SC3623A-LK
DTA124ES
DTC114TS

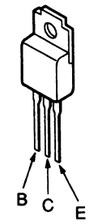
LETTER SIDE



2SA1221-K
2SC2958

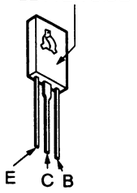


2SB734-34
2SB1375-LC
2SB1560-OPY
2SB1587-OPY
2SD2390-OPY
2SD2438-OPY

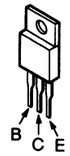


2SD809-K

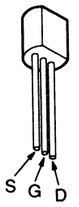
LETTER SIDE



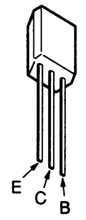
2SD2012



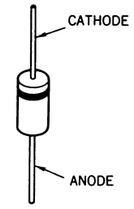
2SK246-GR3



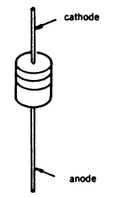
DTC124ES



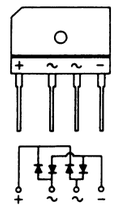
11ES2-NTA2B
1N4148M
1S1585
HZS4ALL
UZ-12BSB
UZ-13BSB



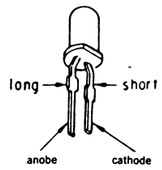
HZS6C3L
UZL-24L
UZ-4.3BSB
UZ-6.2BSC



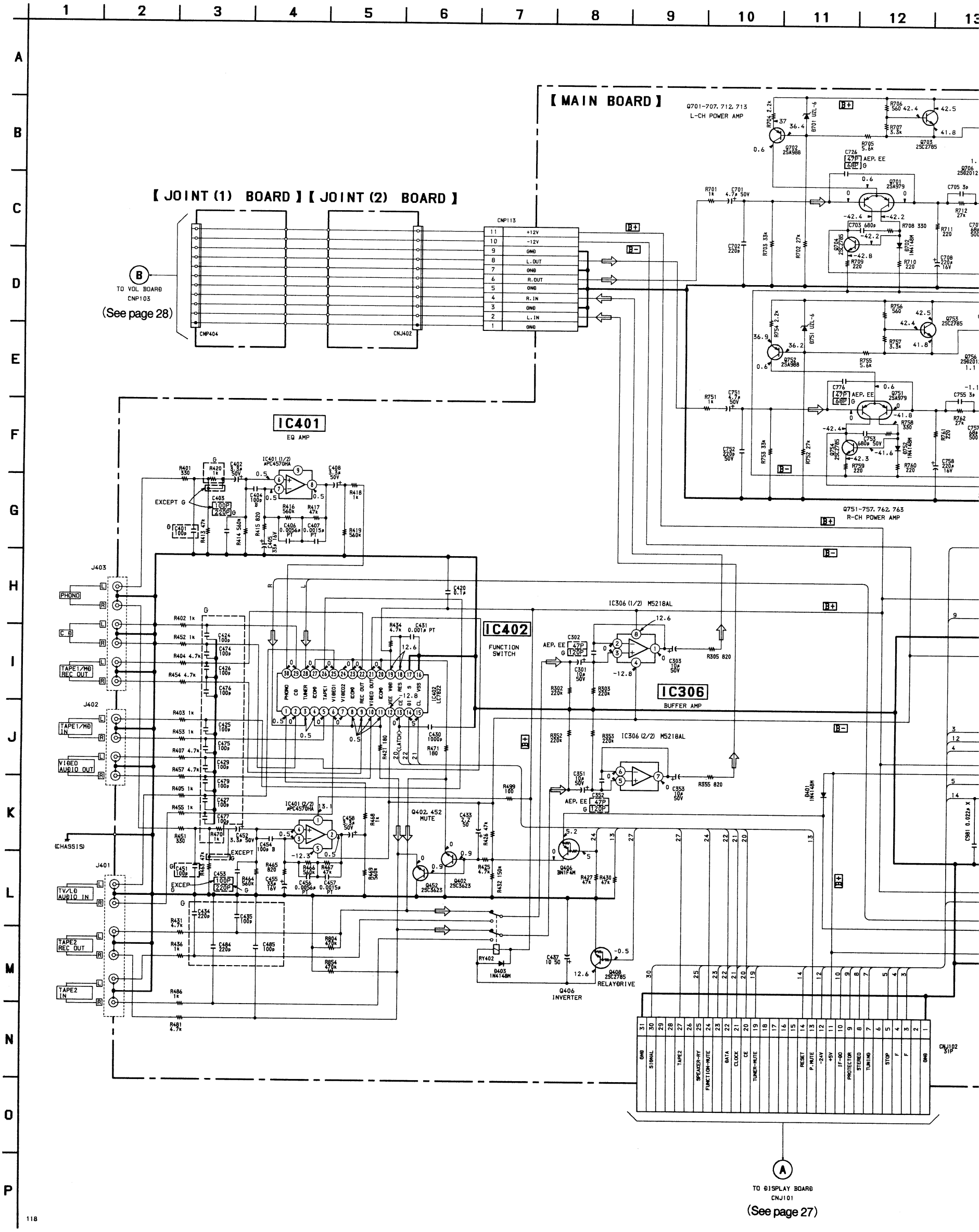
RBV-602-01



SEL3210S-CD
SEL3810A-CD



3-5. SCHEMATIC DIAGRAM —MAIN (GX215) Section—



11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26

【 SW (1) BOARD 】

【 SW (2) BOARD 】

【 HP (1) BOA

【 HP (2) BOA

【 TRANSFORMER BOARD 】

【 AC SW BOARD 】

【 POWER BOARD 】

Q751-757. 762. 763
R-CH POWER AMP

Q714. 715
OVER LOAD DET

Q764
OVER LOAD DET

716. 717
DC OFFSET

Q718
RELAY
DRIVE

Q719
INVERTER

Q951
2SD2012
+12V REG

Q952
-24V REG

Q953
+5V REG

Q958
PRESET DET

Q954-Q957
STOP DET

*NOT REPLACEABLE:
BUILT IN TRANSFORMER

(CHASSIS)

SPEAKERS

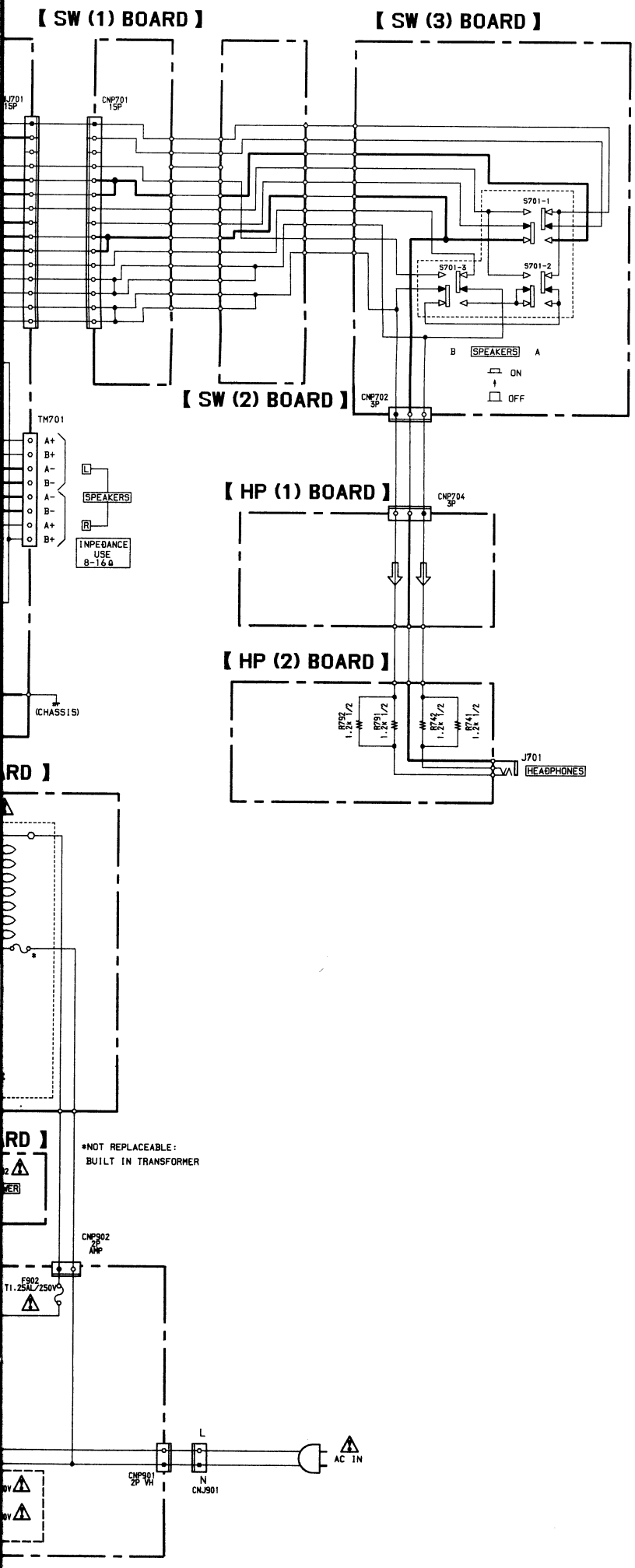
INPEDANCE
USE
8-16Ω

FM75Ω
COAXIAL

TM1
ANTENNA

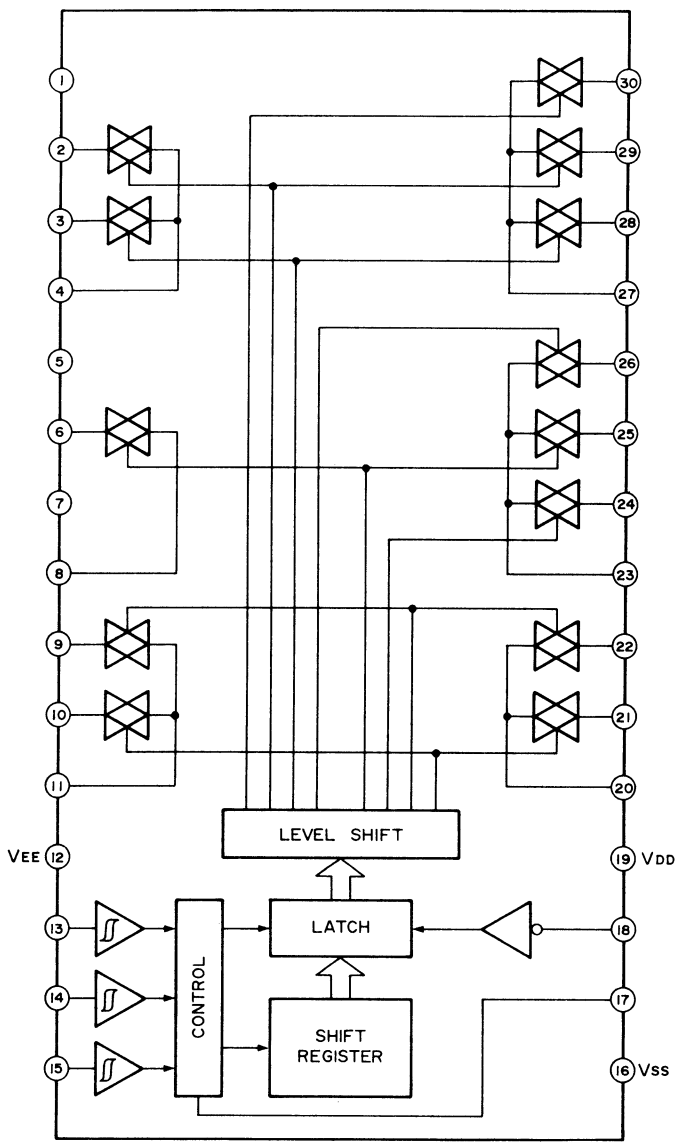
AM

(page 27)



● **IC Block Diagram**

IC402 LC7822



Note:

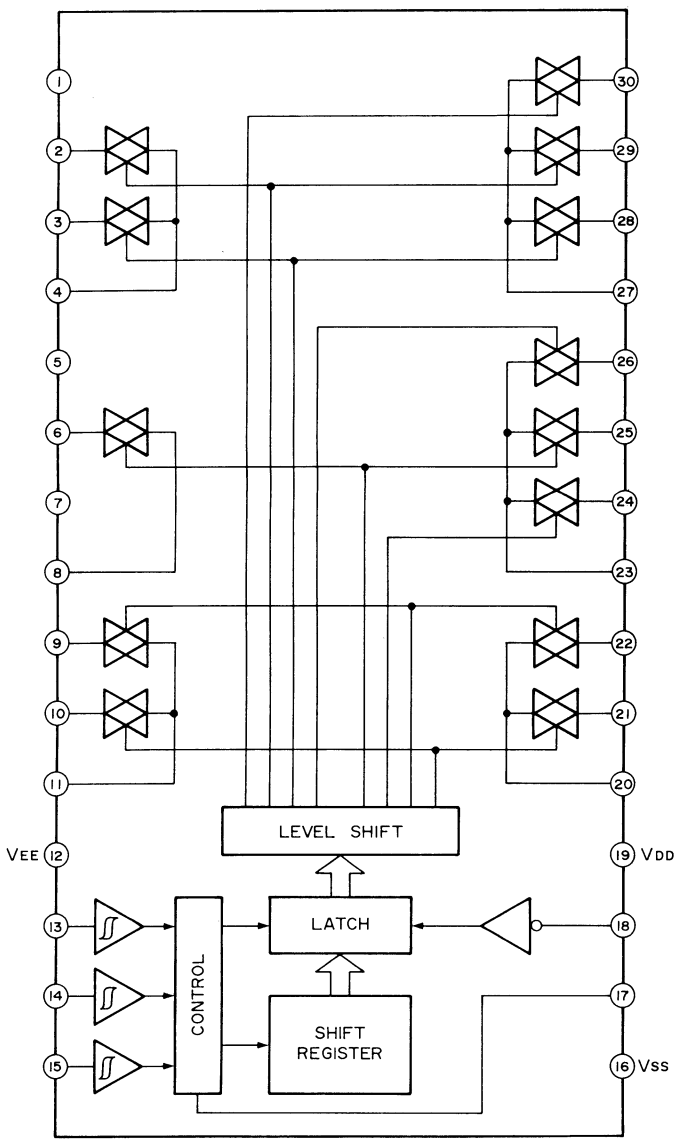
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ⊣NW⊢ : nonflammable resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

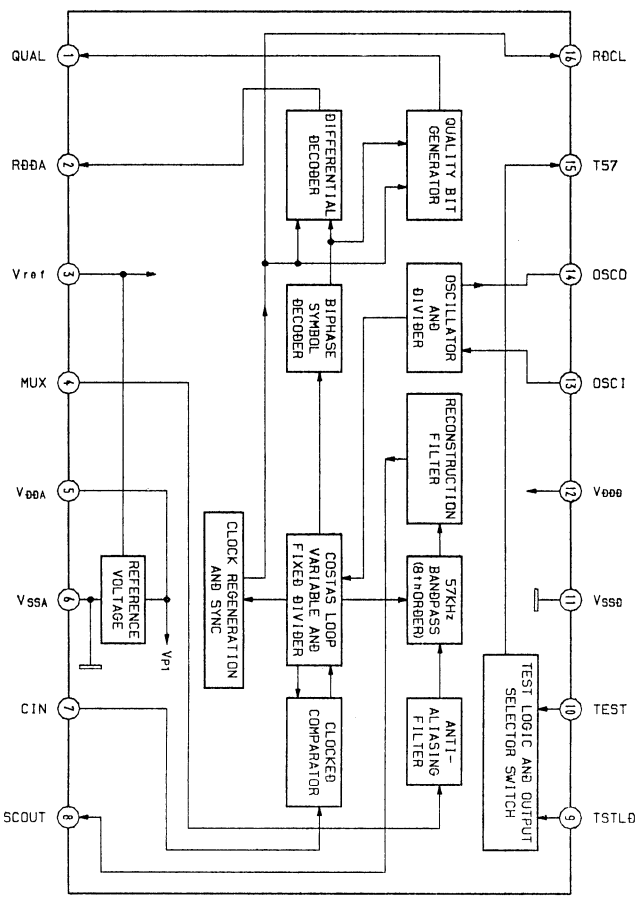
- B+ : B+ Line
- B− : B− Line
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- Abbreviations
  G : German
  EE : East European

● IC Block Diagrams

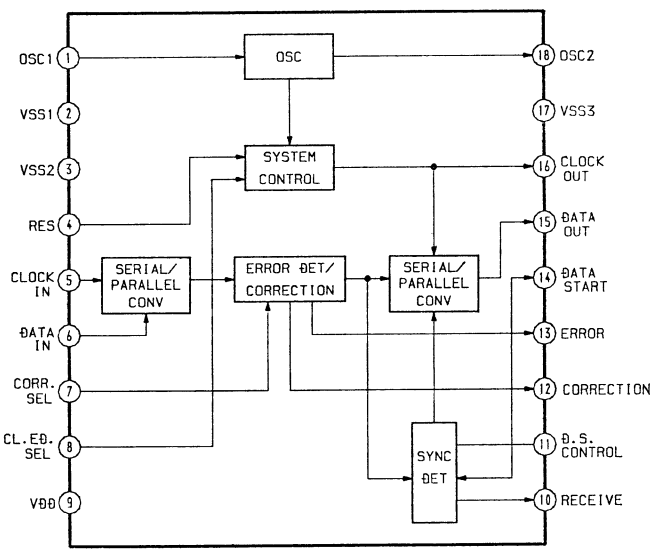
IC402 LC7822



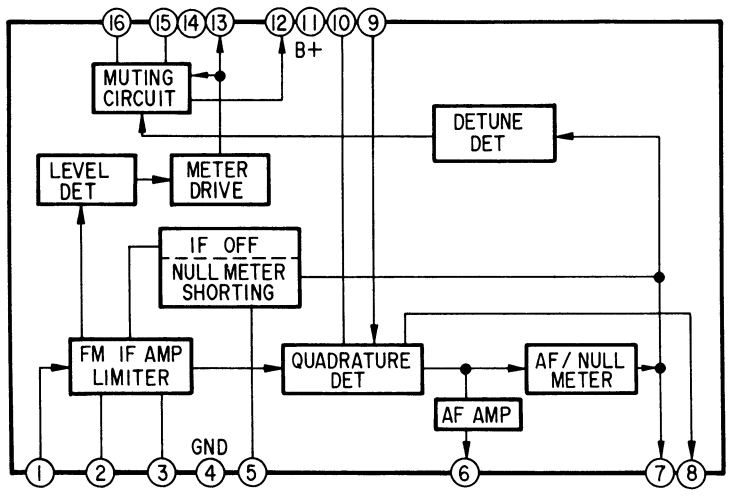
IC1 SAA6579T



IC2 LC7073M



IC3 LA1235



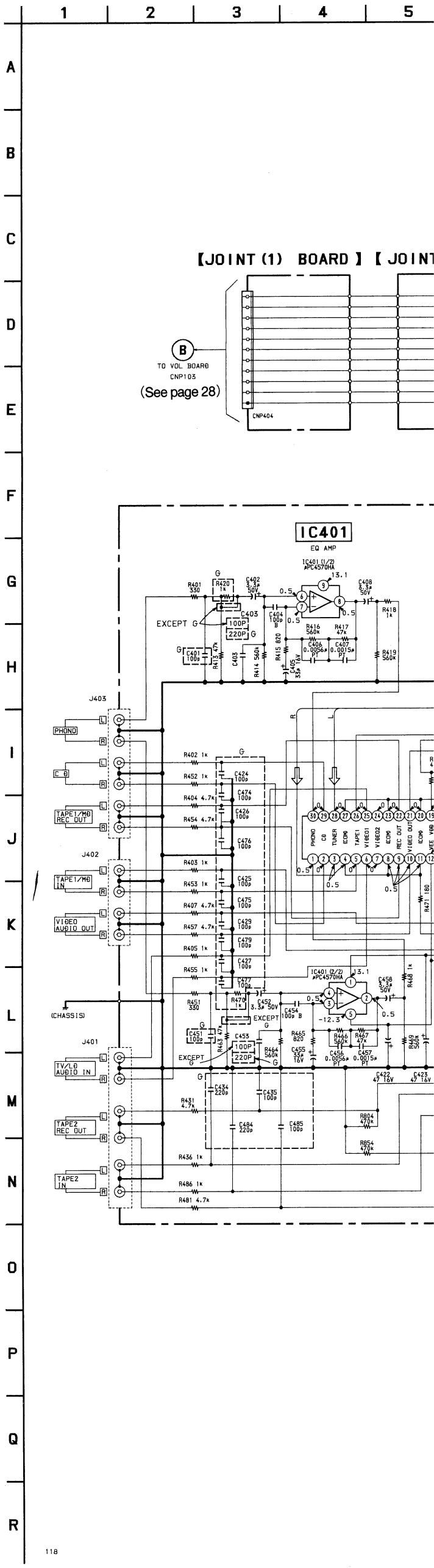
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ⊣W⊢ : nonflammable resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

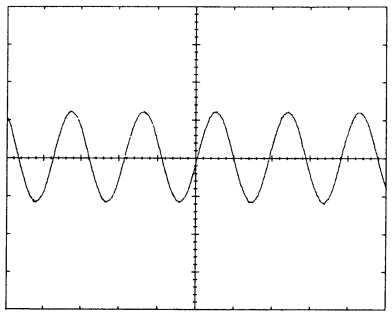
- B+ : B+ Line
- B− : B− Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : GX415 or common
  ( ) : GX315
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
- Abbreviations
  G : German
  EE : East European

3-6. SCHEMATIC DIAGRAM —MAIN (GX315, GX

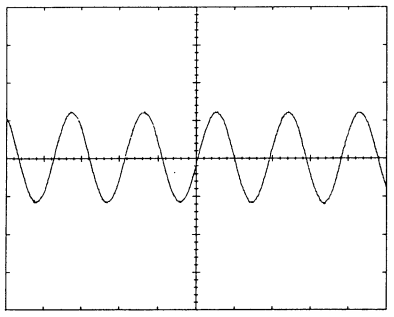


●Waveforms

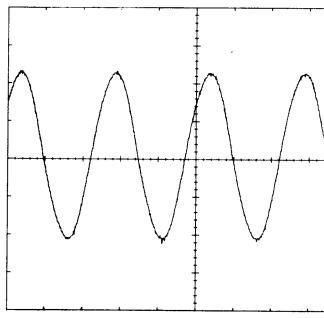
❸ IC1 ⑬
4.33 MHz
14.5 mV



❹ X1
4.33 MHz
25 mV



❺ IC2 ①
4.0 MHz
4.4 V



M —MAIN (GX315, GX415) Section—

4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

【MAIN BOARD】

Q701-707, 712, 713
L-CH POWER AMP

Q751-757, 762, 763
R-CH POWER AMP

Q714, 715
OVER LOAD DET

Q764
OVER LOAD DET

Q716, 717
DC OFFSET

Q718
RELAY DRIVE

【T (1) BOARD】【JOINT (2) BOARD】

CNP113

+12	11
-12	10
GND	9
L.OUT	8
GND	7
R.OUT	6
GND	5
R.IN	4
GND	3
L.IN	2
GND	1

CNP404 CNJ402

IC401 EQ AMP

IC401 (1/2) μPC4570HA

IC401 (2/2) μPC4570HA

IC402 FUNCTION SWITCH

PHONO CD TUNER CDM9 TAPE1 VIDEO1 VIDEO2 CDM9 REC OUT VIDEO OUT CDM9 VEE VDD CE RES DI S CL VSS

IC306 BUFFER AMP

IC306 (1/2) M5218AL

IC306 (2/2) M5218AL

Q402, 752 MUTE

Q403 1N4148M

RY401

Q406 INVERTER

Q408 2SC2785 RELAY DRIVE

CNJ102 31P

GND SIGNAL LED- LED+ TAPE2 POWER-RY SPEAKER-RY FUNCTION-MUTE RDS-START CLOCK DATA CE TUNER-MUTE RDS-IO RDS-RESET RDS-CLOCK RDS-DATA RESET P.MUTE -24V +5V IF-GD PROTECTOR STEREO TUNING STOP F F GND

Q951 +12V REG

Q952 -24V REG

Q953 +5V REG

Q958 PRESET DET

Q954-957 STOP DET

Q959 LED DRIVE

TU1

FM ANT 300ΩOHM FM ANT 300/75OHM GND AM ANT FM IF OUT CE BI CL BD GND S1 S2 VDD 5V AM IF OUT VCC 13V DET OUT L OUT GND R OUT MUTING TUNED STEREO SIGNAL

IC1 RDS DEMODULATOR IC1 SAA6579T

IC4 AMP IC4 NJM4558D

IC2 RDS DATA PROCESS IC2 LC7073M

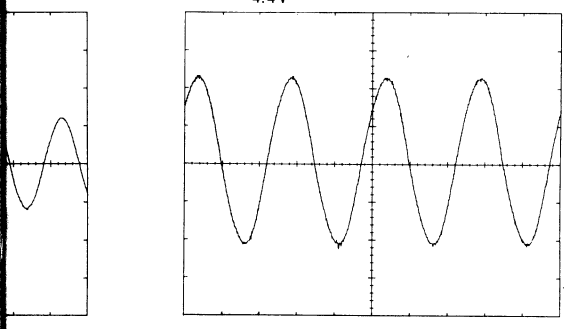
IC3 LA1235

TM1 ANTENNA FM 75Ω COAXIAL AM

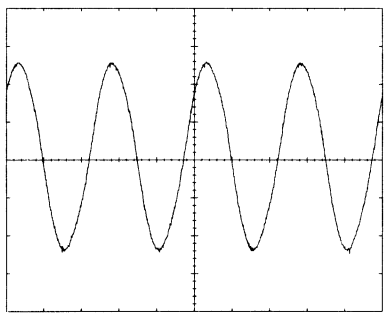
Ⓐ TO DISPLAY BOARD CNJ101

(See page 27)

5 IC2 ①
4.0 MHz
4.4 V



6 IC2 ⑱
4.0 MHz
5.0 V



16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28

【 SW (1) BOARD 】

【 SW (3) BOARD 】

【 SW (2) BOARD 】

【 HP (1) BOARD 】

【 HP (2) BOARD 】

【 TRANSFORMER BOARD 】

【 POWER BOARD 】

Q714, 715
OVER LOAD DET

Q764
OVER LOAD DET

Q716, 717
DC OFFSET

Q718
RELAY DRIVE

Q719
INVERTER

Q953
+5V REG

Q959
LED DRIVE

Q960
RELAY DRIVE

IC2
RDS DATA PROCESS

IC3
FM SIGNAL DETECTOR

IC2
LC7073M

IC3
LA1235

TU1

CNJ701 15P

CNP701 15P

CNP702 3P

CNP704 3P

CNP951 4P EH

CNP952 4P EH

CNP954 3P VH

CNP955 6P VH

CNP956 3P EH

CNP902 2P AMP

CNP903 2P AMP

CNP901 2P VH

CNJ902 AC OUTLET

CNJ901

J701 HEADPHONES

SPEAKERS

INPEDANCE USE 8-16Ω

AC IN

FM SIGNAL LEVEL

RDS-CLK

RDS-DATA

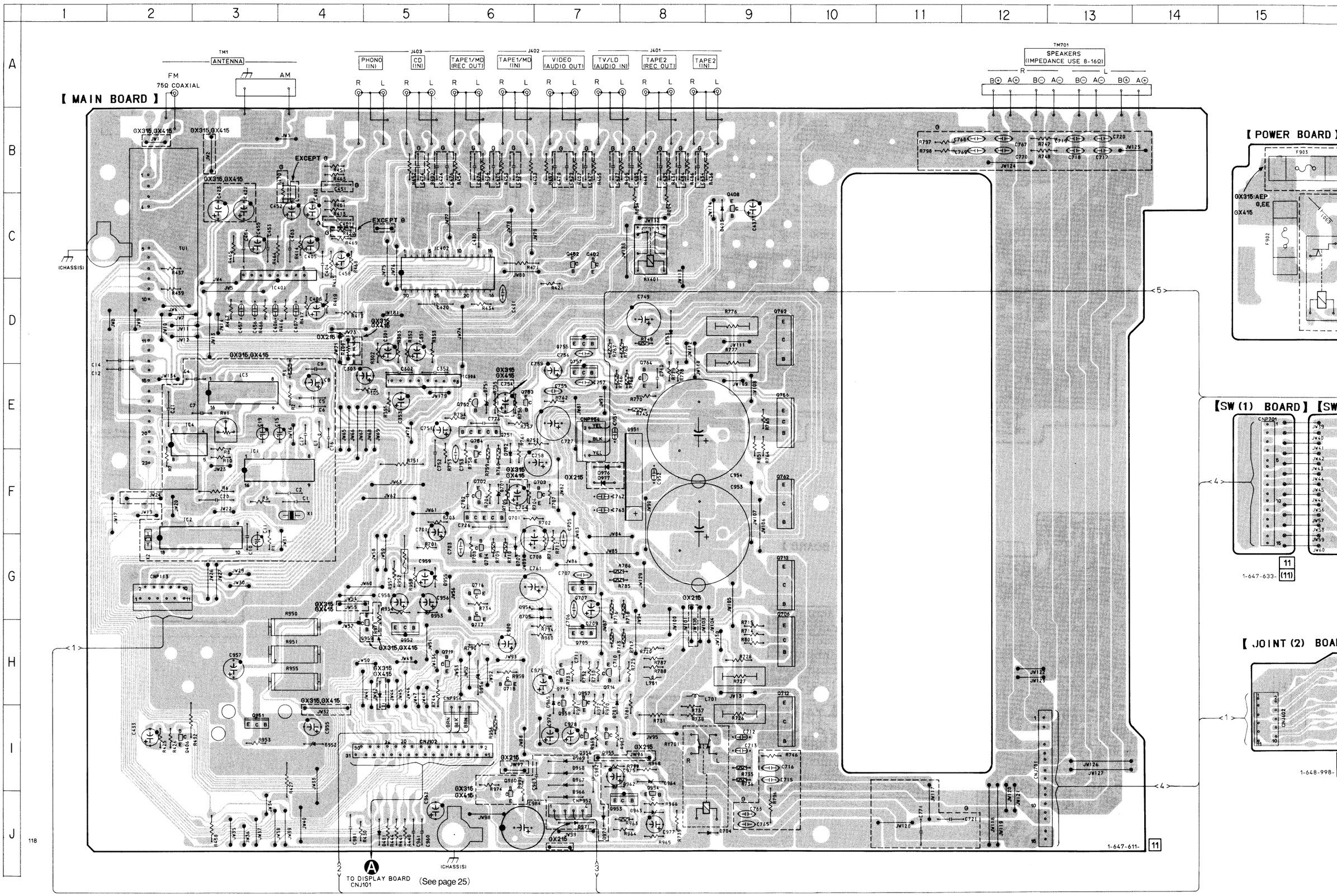
RDS-START

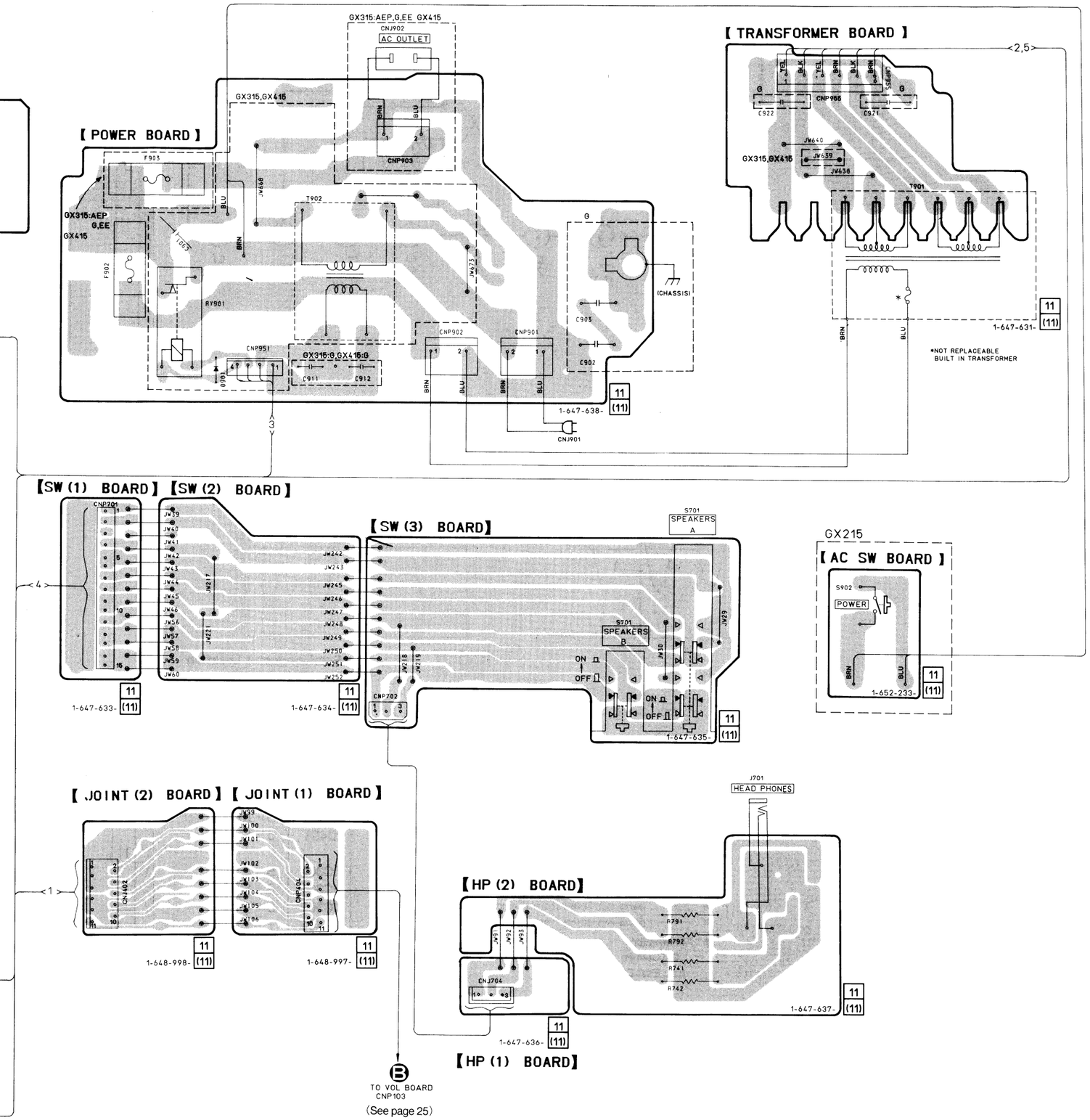
RDS-IR

RDS-RESET

(CHASSIS)

*NOT REPLACEABLE:
BUILT IN TRANSFORMER


【 MAIN BOARD 】
【 POWER BOARD 】
【SW (1) BOARD】【SW (2) BOA
【 JOINT (2) BOARD 】【 JO
TM1
ANTENNA
FM
75Ω COAXIAL
AM
J403
PHONO (IN)
CD (IN)
TAPE1/MD (REC OUT)
J402
TAPE1/MD (IN)
VIDEO (AUDIO OUT)
J401
TV/LD (AUDIO IN)
TAPE2 (REC OUT)
TAPE2 (IN)
TM701
SPEAKERS
(IMPEDANCE USE 8-16Ω)
EXCEPT G
GX315,GX415
GX316,GX415
GX215
(CHASSIS)
TO DISPLAY BOARD CNJ101
(See page 25)
1-647-611-
1-647-633-
1-648-998-
11
(11)
118
—19—
—20—



• Semiconductor Location

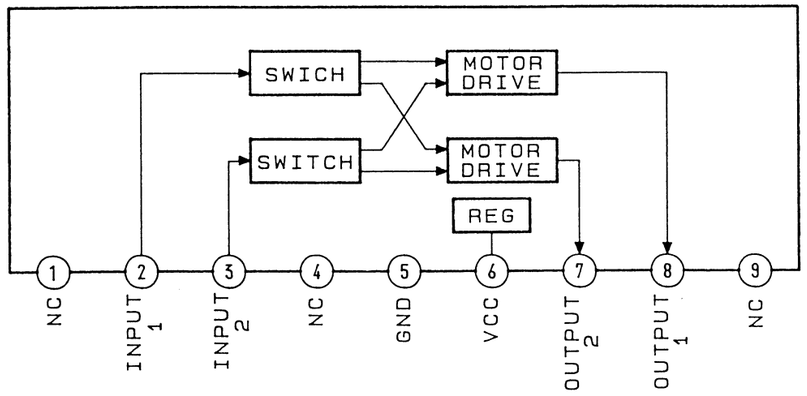
Ref. No.	Location	Ref. No.	Location
D1	H - 5	Q402	C - 7
D401	J - 5	Q406	I - 2
D403	C - 9	Q408	C - 9
D701	F - 6	Q452	C - 7
D702	G - 6	Q701	F - 6
D703	I - 7	Q702	F - 6
D704	J - 9	Q703	F - 7
D705	G - 7	Q704	G - 6
D751	E - 6	Q705	H - 7
D752	F - 6	Q706	H - 9
D753	D - 8	Q707	G - 7
D901	D - 16	Q712	I - 9
D951	F - 8	Q713	G - 9
D952	I - 4	Q714	H - 7
D953	G - 5	Q715	H - 7
D954	G - 7	Q716	G - 6
D955	G - 5	Q717	G - 6
D956	H - 6	Q718	H - 6
D962	I - 7	Q719	H - 5
D963	J - 8	Q751	E - 6
D964	I - 8	Q752	E - 6
D965	I - 7	Q753	E - 6
D966	J - 7	Q754	F - 6
D967	I - 7	Q755	D - 7
D968	I - 7	Q756	E - 9
D969	I - 7	Q757	E - 7
D970	J - 7	Q762	F - 9
D971	J - 7	Q763	D - 9
D976	F - 7	Q764	E - 8
D977	F - 7	Q951	I - 3
		Q952	H - 5
IC1	F - 3	Q953	J - 8
IC2	G - 3	Q954	J - 8
IC3	E - 3	Q955	I - 7
IC4	E - 2	Q956	I - 7
IC306	E - 5	Q957	H - 7
IC401	C - 3	Q958	H - 7
IC402	C - 5	Q959	H - 5
		Q960	J - 6

Note:

- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- Abbreviations
  G : German
  EE : East European

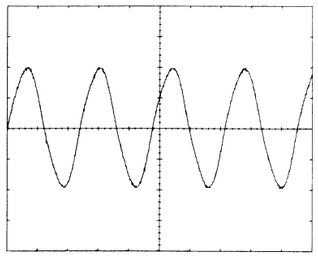
• IC Block Diagrams

IC302 BA6208

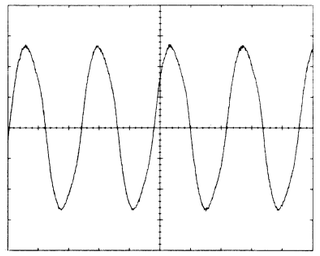


• Waveforms

❶ IC300 ㉞
4.19MHz
3.9V



❷ IC300 ㉟
4.19MHz
5.3V



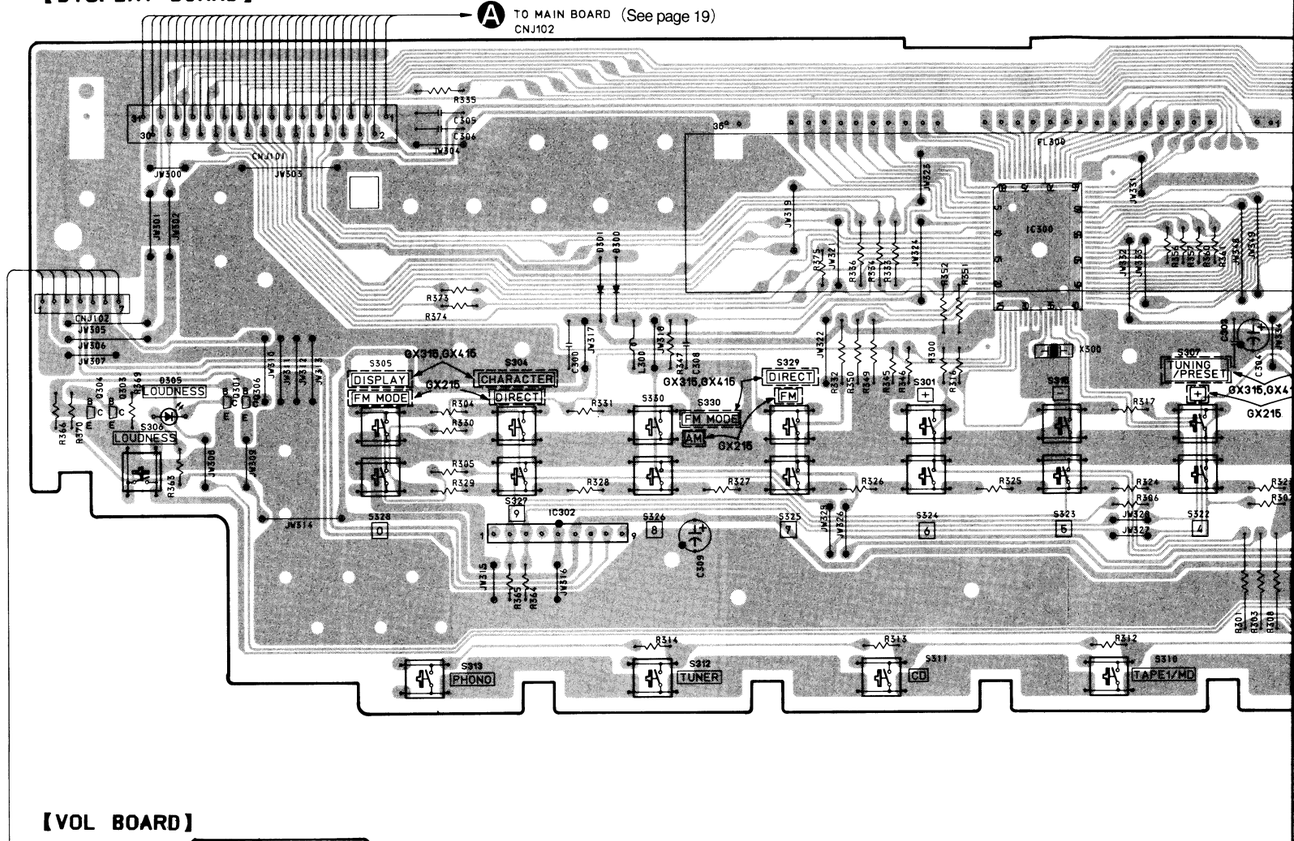
• Semiconductor Location

Ref. No.	Location
D300	C - 5
D301	C - 5
D302	C - 10
D304	B - 10
D305	C - 2
D306	B - 10
D404	J - 1
IC300	B - 7
IC301	B - 11
IC302	D - 4
IC403	I - 3
Q300	B - 10
Q301	C - 2
Q302	C - 10
Q303	C - 2
Q304	C - 1
Q305	A - 10
Q306	C - 2
Q404	I - 2
Q454	I - 3

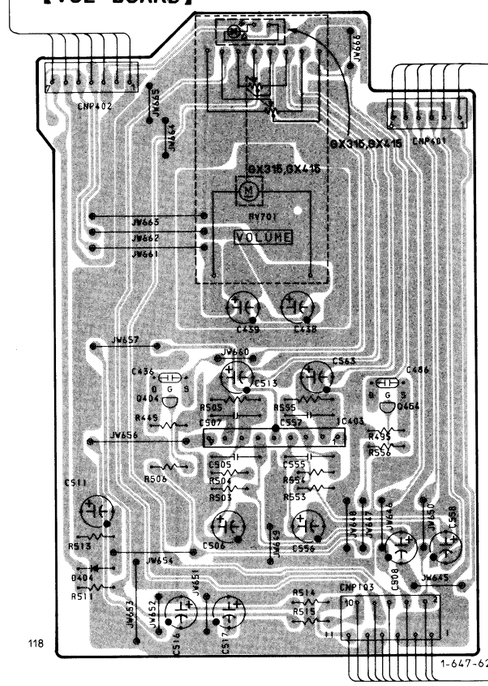
Note:

- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- Abbreviations
  G : German
  EE : East European

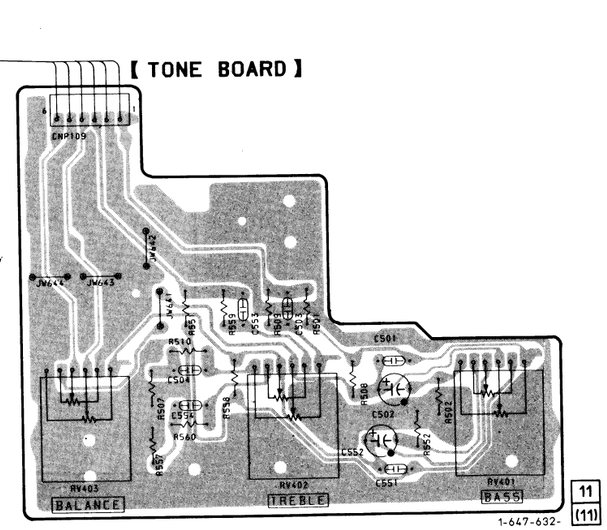
【DISPLAY BOARD】



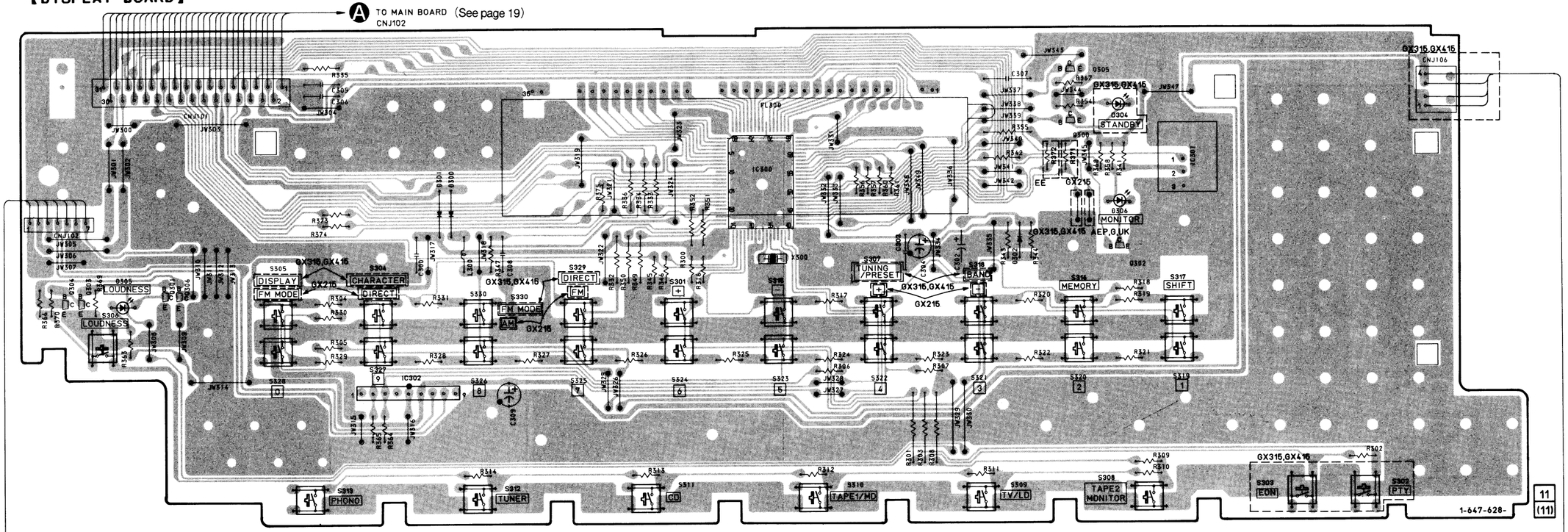
【VOL BOARD】



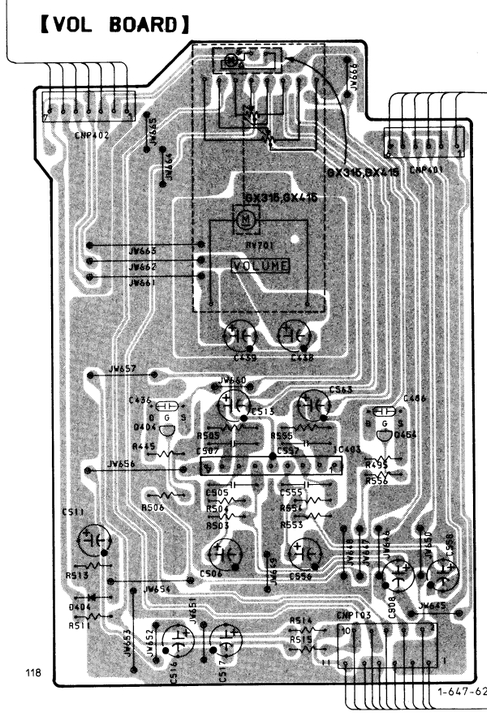
【TONE BOARD】



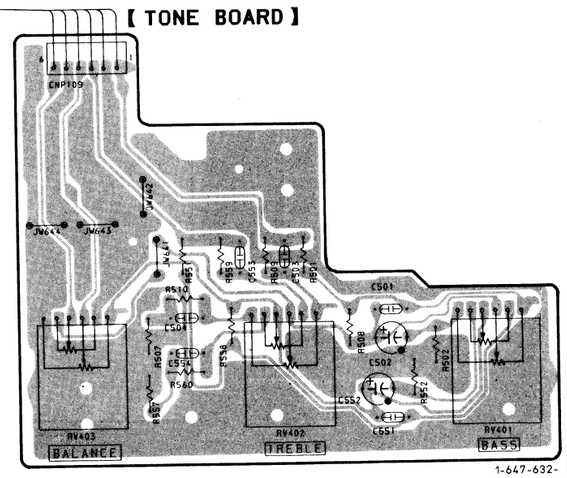
【DISPLAY BOARD】



【VOL BOARD】



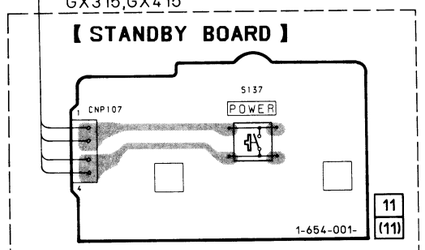
【TONE BOARD】



B TO JOINT BOARD CNP404 (See page 21)

GX315,GX415

【STANDBY BOARD】

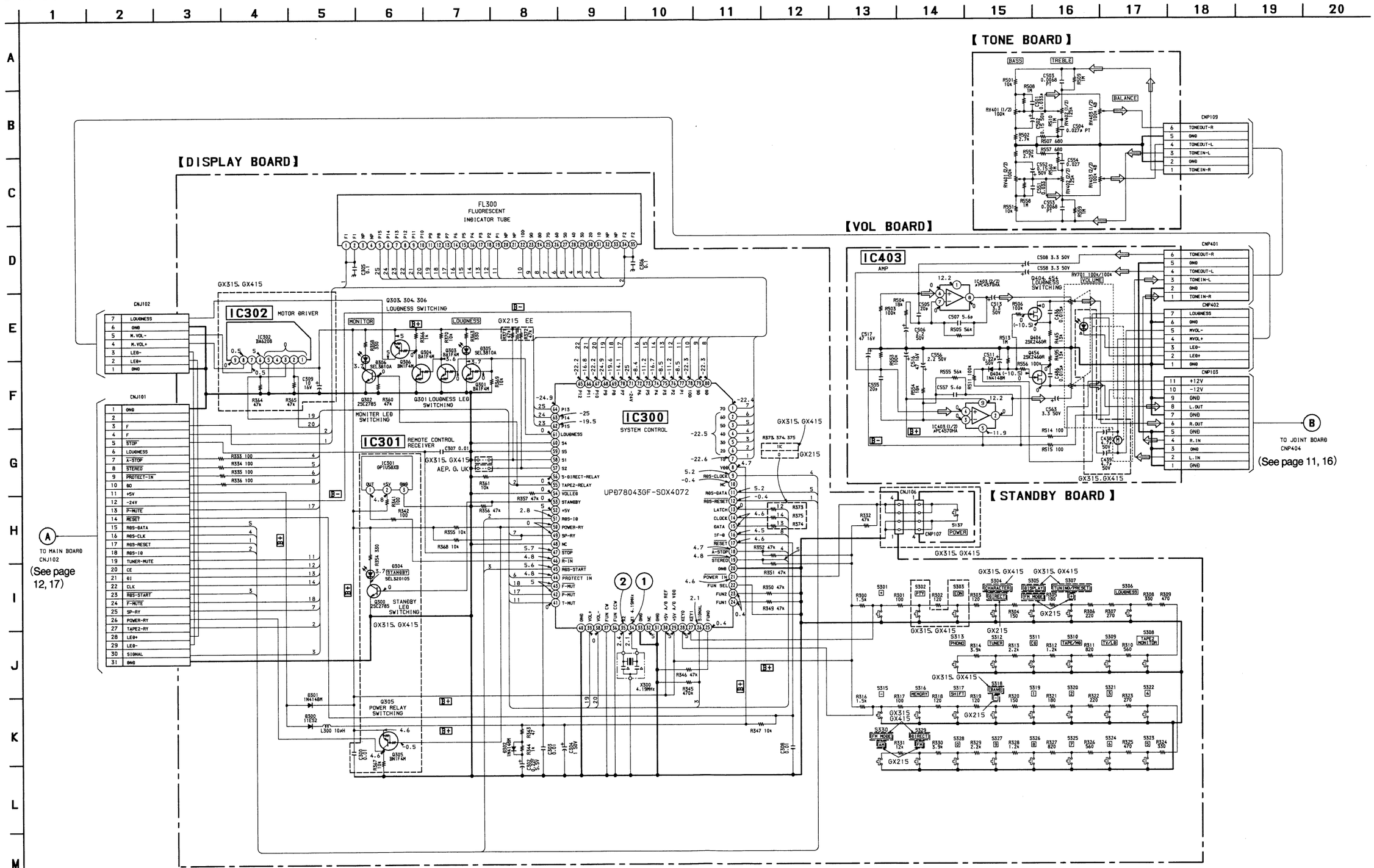


NC

tor Location

ation
-5
-5
-10
-10
-2
-10
-1
-7
-11
-4
-3
-10
-2
-10
-2
-1
-10
-2
-2
-3

3-9. SCHEMATIC DIAGRAM —DISPLAY Section—



Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ : B+ Line
- B− : B− Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
- Abbreviations
  G : German
  EE : East European

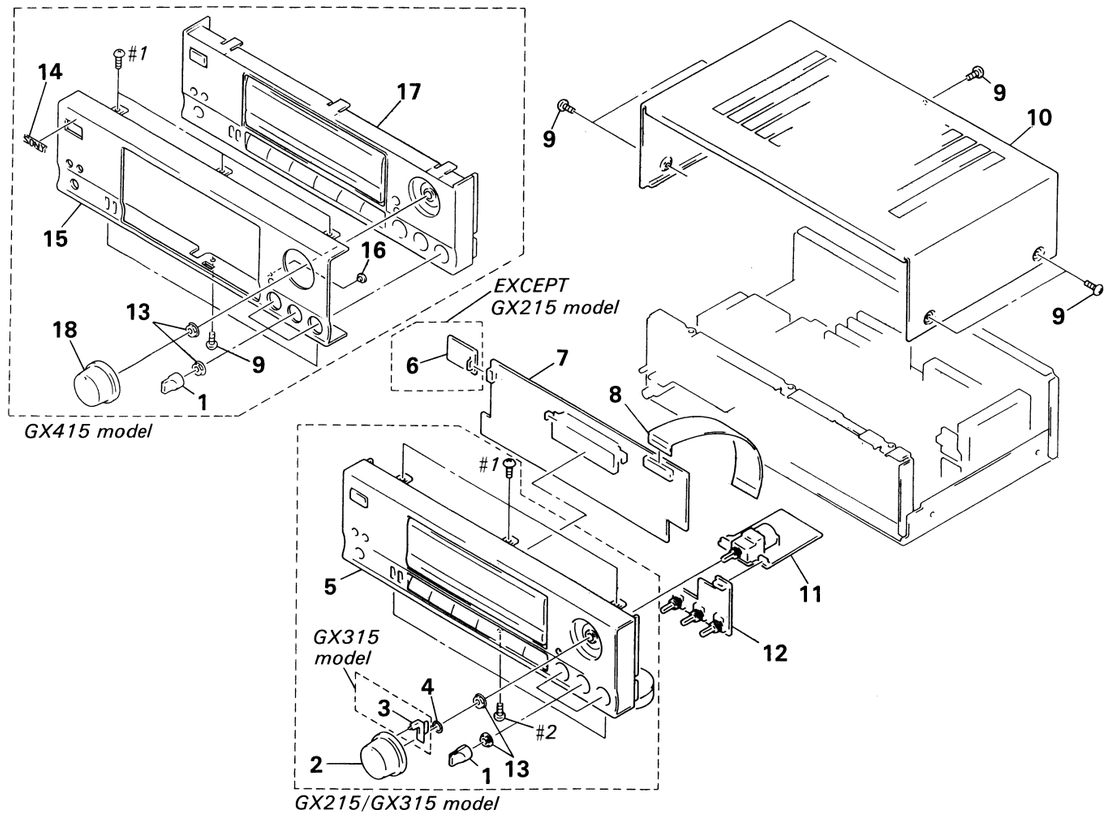
SECTION 4
EXPLODED VIEWS

NOTE:
- -xx,-x mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (#mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviations
  G : German EE : East European

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

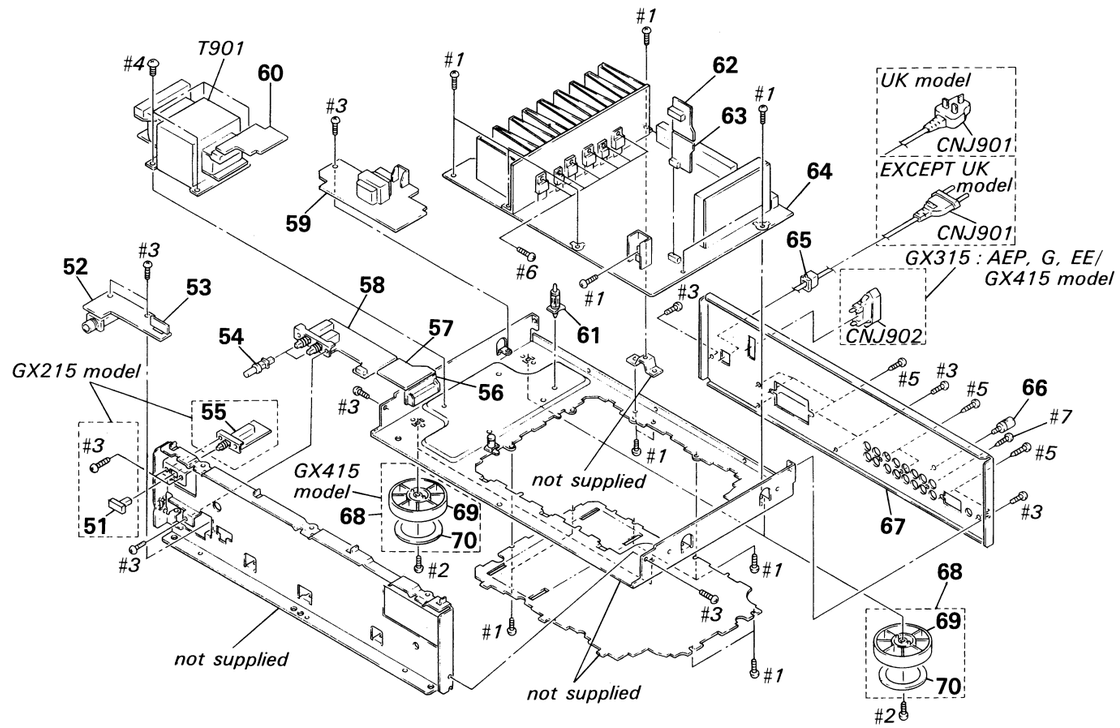
Note:
There are two type of AEP models which are depend on countries.
AEP2 : Model for Scandinavian countries, Switzerland, Spain and Portugal.
AEP1 : Model for other European countries.

4-1. CABINET SECTION



Ref.No.	Part No.	Description	Remark
1	4-957-383-01	KNOB (F14)	
2	4-949-659-01	KNOB (VOL-NEW) (GX315)	
2	4-949-659-11	KNOB (VOL-NEW) (GX215)	
3	4-958-991-01	PLATE (VOL), LIGHT GUIDE (GX315)	
4	3-350-426-01	SPRING, RING (GX215/GX315)	
5	X-4944-688-1	PANEL ASSY, FRONT (GX315)	
5	X-4944-689-1	PANEL ASSY, FRONT (GX215)	
6	1-654-001-11	STANDBY BOARD (EXCEPT GX215)	
*7	A-4369-553-A	DISPLAY BOARD, COMPLETE (GX215:EE)	
*7	A-4369-555-A	DISPLAY BOARD, COMPLETE (GX215:AEP,G)	
*7	A-4369-559-A	DISPLAY BOARD, COMPLETE (GX315:EE)	
*7	A-4369-561-A	DISPLAY BOARD, COMPLETE (GX315:AEP,UK,G/GX415)	
8	1-696-456-11	WIRE (FLAT TYPE) (31 CORE)	
9	3-704-366-01	SCREW (CASE) (M3X8)	
*10	4-951-795-01	CASE	
*11	A-4369-228-A	VOL BOARD, COMPLETE (GX315)	
*11	A-4369-558-A	VOL BOARD, COMPLETE (GX215)	
*11	A-4369-562-A	VOL BOARD, COMPLETE (GX415)	
*12	1-647-632-11	TONE BOARD	
13	3-575-039-00	NUT, CONTROL	
14	4-942-568-01	EMBLEM (NO.5), SONY (GX415)	
15	4-965-079-01	PANEL, FRONT (GX415)	
16	4-965-084-01	INDICATOR (A) (GX415)	
17	X-4944-690-1	BASE ASSY, PANEL (GX415)	
18	X-4944-691-1	KNOB (R48) ASSY (GX415)	

4-2. CHASSIS SECTION



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description	Remark
51	4-917-460-01	KNOB, POWER (GX215)	
*52	1-647-637-11	HP (2) BOARD	
*53	1-647-636-11	HP (1) BOARD	
54	4-951-801-01	BUTTON (S)	
*55	1-652-233-11	AC SW BOARD (GX215)	
*56	1-647-633-11	SW (1) BOARD	
*57	1-647-634-11	SW (2) BOARD	
*58	1-647-635-11	SW (3) BOARD	
*59	1-647-638-11	POWER BOARD	
*60	1-647-631-11	TRANSFORMER BOARD	
*61	4-924-098-31	HOLDER, PC BOARD	
*62	1-648-997-11	JOINT (1) BOARD	
*63	1-648-998-11	JOINT (2) BOARD	
*64	A-4369-227-A	MAIN BOARD, COMPLETE (GX415:G)	
*64	A-4369-229-A	MAIN BOARD, COMPLETE (GX315:G)	
*64	A-4369-230-A	MAIN BOARD, COMPLETE (GX215:AEP)	
*64	A-4369-554-A	MAIN BOARD, COMPLETE (GX215:EE)	
*64	A-4369-560-A	MAIN BOARD, COMPLETE (GX315:EE)	
*64	A-4369-563-A	MAIN BOARD, COMPLETE (GX415:AEP)	
*64	A-4369-564-A	MAIN BOARD, COMPLETE (GX315:AEP,UK)	
*64	A-4369-578-A	MAIN BOARD, COMPLETE (GX215:G)	
*65	3-703-244-00	BUSHING (2104), CORD	
66	4-947-010-01	SCREW, FEEDER FIXED	
*67	4-965-078-11	PANEL, BACK (GX315:AEP2,EE)	
*67	4-965-078-21	PANEL, BACK (GX315:G)	
*67	4-965-078-31	PANEL, BACK (GX315:UK)	
*67	4-965-078-41	PANEL, BACK (GX215:AEP1/GX315:AEP1)	
*67	4-965-078-51	PANEL, BACK (GX215:AEP2,EE)	
*67	4-965-078-61	PANEL, BACK (GX215:G)	
*67	4-965-080-01	PANEL, BACK (GX415:AEP1)	
*67	4-965-080-11	PANEL, BACK (GX415:AEP2)	
*67	4-965-080-21	PANEL, BACK (GX415:G)	
68	X-4941-292-1	FOOT ASSY (F58175S)	
69	3-318-688-31	FOOT (F58175S)	
70	4-923-836-21	CUSHION	
⚠CNJ901	1-696-570-21	CORD, POWER (UK)	
⚠CNJ901	1-575-651-11	CORD, POWER (EXCEPT UK)	
⚠CNJ902	1-526-794-11	OUTLET, AC (GX315:AEP,G,EE/GX415)	
⚠T901	1-426-733-11	TRANSFORMER, POWER (GX215)	
⚠T901	1-426-734-11	TRANSFORMER, POWER (GX315:AEP,G,EE)	
⚠T901	1-426-735-11	TRANSFORMER, POWER (GX415)	
⚠T901	1-426-986-11	TRANSFORMER, POWER (GX315:UK)	

SECTION 5
ELECTRICAL PARTS LIST

AC SW **DISPLAY**

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example:
  uA··· : μA···, uPA··· : μPA···, uPB··· : μPB···, uPC··· : μPC···, uPD··· : μPD···
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Abbreviations
  G : German EE : East European

When indicating parts by reference number, please include the board.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Note:
There are two type of AEP models which are depend on countries.
AEP2 : Model for Scandinavian countries, Switzerland, Spain and Portugal.
AEP1 : Model for other European countries.

Ref.No.	Part No.	Description			Remark
*	1-652-233-11	AC SW BOARD (GX215)			
		**********			
		< SWITCH >			
⚠S902	1-572-267-21	SWITCH, PUSH (AC POWER) (1 KEY) (POWER)			(GX215)
**********					
*	A-4369-553-A	DISPLAY BOARD, COMPLETE (GX215:EE)			
*	A-4369-555-A	DISPLAY BOARD, COMPLETE (GX215:AEP, G)			
*	A-4369-559-A	DISPLAY BOARD, COMPLETE (GX315:EE)			
*	A-4369-561-A	DISPLAY BOARD, COMPLETE (GX315:AEP,G,UK/			GX415)
		**********			
		< CAPACITOR >			
C300	1-161-379-00	CERAMIC	0.01uF	20% 25V	(GX315/GX415)
C302	1-104-905-11	CAP, DOUBLE LAYERS		0.22F	
C303	1-161-379-00	CERAMIC	0.01uF	20% 25V	
C304	1-126-301-11	ELECT	1uF	20% 50V	
C305	1-164-159-11	CERAMIC	0.1uF	50V	
C306	1-164-159-11	CERAMIC	0.1uF	50V	
C307	1-161-379-00	CERAMIC	0.01uF	20% 25V	
C308	1-161-379-00	CERAMIC	0.01uF	20% 25V	
C309	1-126-157-11	ELECT	10uF	20% 16V	(GX315/GX415)
		< CONNECTOR >			
*CNJ101	1-568-873-11	SOCKET, CONNECTOR 31P			
*CNJ102	1-566-969-11	HOUSING, CONNECTOR(PC BOARD)7P			
*CNJ106	1-565-480-11	CONNECTOR, BOARD TO BOARD 4P			(GX315/GX415)
		< DIODE >			
D300	8-719-024-99	DIODE 11ES2-NTA2B			
D301	8-719-987-63	DIODE 1N4148M			
D302	8-719-987-63	DIODE 1N4148M			
D304	8-719-313-69	LED SEL3210S-CD (STANDBY)			(GX315/GX415)
D305	8-719-313-72	LED SEL3810A-CD (LOUNDNESS)			
D306	8-719-313-72	LED SEL3810A-CD (MONITOR)			

Ref.No.	Part No.	Description			Remark
		< FLUORESCENT INDICATOR TUBE >			
FL300	1-517-141-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC300	8-759-284-81	IC uPD78043GF-SOX4072			
IC301	8-749-923-11	IC GP1U58XB (GX315/GX415)			
IC302	8-759-962-08	IC BA6208 (GX315/GX415)			
		< COIL >			
L300	1-410-509-11	INDUCTOR	10uH		
		< TRANSISTOR >			
Q300	8-729-119-78	TRANSISTOR 2SC2785-HFE (GX315/GX415)			
Q301	8-729-900-36	TRANSISTOR DTC124ES			
Q302	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q303	8-729-900-36	TRANSISTOR DTC124ES			
Q304	8-729-900-36	TRANSISTOR DTC124ES			
Q305	8-729-900-63	TRANSISTOR DTA124ES (GX315/GX415)			
Q306	8-729-900-63	TRANSISTOR DTA124ES			
		< RESISTOR >			
R300	1-249-419-11	CARBON	1.5K	5% 1/4W	
R301	1-247-807-31	CARBON	100	5% 1/4W	
R302	1-249-406-11	CARBON	120	5% 1/4W	
R303	1-249-406-11	CARBON	120	5% 1/4W	
R304	1-247-811-31	CARBON	150	5% 1/4W	
R305	1-249-408-11	CARBON	180	5% 1/4W	
R306	1-249-409-11	CARBON	220	5% 1/4W	
R307	1-249-410-11	CARBON	270	5% 1/4W	
R308	1-249-411-11	CARBON	330	5% 1/4W	
R309	1-249-413-11	CARBON	470	5% 1/4W	
R310	1-249-414-11	CARBON	560	5% 1/4W	
R311	1-249-416-11	CARBON	820	5% 1/4W	
R312	1-249-418-11	CARBON	1.2K	5% 1/4W	
R313	1-249-421-11	CARBON	2.2K	5% 1/4W	
R314	1-249-424-11	CARBON	3.9K	5% 1/4W	
R316	1-249-419-11	CARBON	1.5K	5% 1/4W	
R317	1-247-807-31	CARBON	100	5% 1/4W	

DISPLAY

Ref.No.	Part No.	Description				Remark
R318	1-249-406-11	CARBON	120	5%	1/4W	
R319	1-249-406-11	CARBON	120	5%	1/4W	
R320	1-247-811-31	CARBON	150	5%	1/4W	
R321	1-249-408-11	CARBON	180	5%	1/4W	
R322	1-249-409-11	CARBON	220	5%	1/4W	
R323	1-249-410-11	CARBON	270	5%	1/4W	
R324	1-249-411-11	CARBON	330	5%	1/4W	
R325	1-249-413-11	CARBON	470	5%	1/4W	
R326	1-249-414-11	CARBON	560	5%	1/4W	
R327	1-249-416-11	CARBON	820	5%	1/4W	
R328	1-249-418-11	CARBON	1.2K	5%	1/4W	
R329	1-249-421-11	CARBON	2.2K	5%	1/4W	
R330	1-249-424-11	CARBON	3.9K	5%	1/4W	
R331	1-249-430-11	CARBON	12K	5%	1/4W	
R332	1-249-437-11	CARBON	47K	5%	1/4W	
R333	1-247-807-31	CARBON	100	5%	1/4W	
R334	1-247-807-31	CARBON	100	5%	1/4W	
R335	1-247-807-31	CARBON	100	5%	1/4W	
R336	1-247-807-31	CARBON	100	5%	1/4W	
R341	1-247-807-31	CARBON	100	5%	1/4W	(GX315/GX415)
R342	1-247-807-31	CARBON	100	5%	1/4W	(GX315/GX415)
R343	1-249-401-11	CARBON	47	5%	1/4W	
R344	1-249-417-11	CARBON	1K	5%	1/4W	
R345	1-247-895-00	CARBON	470K	5%	1/4W	
R346	1-249-437-11	CARBON	47K	5%	1/4W	
R347	1-249-429-11	CARBON	10K	5%	1/4W	
R349	1-249-437-11	CARBON	47K	5%	1/4W	
R350	1-249-437-11	CARBON	47K	5%	1/4W	
R351	1-249-437-11	CARBON	47K	5%	1/4W	
R352	1-249-437-11	CARBON	47K	5%	1/4W	
R354	1-249-411-11	CARBON	330	5%	1/4W	(GX315/GX415)
R355	1-249-429-11	CARBON	10K	5%	1/4W	
R356	1-249-437-11	CARBON	47K	5%	1/4W	
R357	1-249-437-11	CARBON	47K	5%	1/4W	
R358	1-249-411-11	CARBON	330	5%	1/4W	
R360	1-249-437-11	CARBON	47K	5%	1/4W	
R361	1-249-429-11	CARBON	10K	5%	1/4W	
R363	1-249-411-11	CARBON	330	5%	1/4W	
R364	1-249-437-11	CARBON	47K	5%	1/4W	(GX315/GX415)
R365	1-249-437-11	CARBON	47K	5%	1/4W	(GX315/GX415)
R366	1-249-417-11	CARBON	1K	5%	1/4W	
R367	1-249-429-11	CARBON	10K	5%	1/4W	(GX315/GX415)
R368	1-249-429-11	CARBON	10K	5%	1/4W	
R369	1-249-429-11	CARBON	10K	5%	1/4W	
R370	1-249-429-11	CARBON	10K	5%	1/4W	
R371	1-249-437-11	CARBON	47K	5%	1/4W	(GX215)
R372	1-249-437-11	CARBON	47K	5%	1/4W	(EE)
R373	1-249-417-11	CARBON	1K	5%	1/4W	(GX315/GX415)
R374	1-249-417-11	CARBON	1K	5%	1/4W	(GX315/GX415)
R375	1-249-417-11	CARBON	1K	5%	1/4W	(GX315/GX415)

< SWITCH >

S301	1-554-303-21	SWITCH, TACTILE (+)
S302	1-554-303-21	SWITCH, TACTILE (GX315/GX415) (PTY)
S303	1-554-303-21	SWITCH, TACTILE (GX315/GX415) (EON)
S304	1-554-303-21	SWITCH, TACTILE (GX215:DIRECT) (GX315/GX415:CHARACTER)
S305	1-554-303-21	SWITCH, TACTILE (GX215:FM MODE) (GX315/GX415:DISPLAY)
S306	1-554-303-21	SWITCH, TACTILE (LOUDNESS)
S307	1-554-303-21	SWITCH, TACTILE (GX215: +) (GX315/GX415: TUNING/PRESET)
S308	1-554-303-21	SWITCH, TACTILE (TAPE2 MONITOR)
S309	1-554-303-21	SWITCH, TACTILE (TV/LD)
S310	1-554-303-21	SWITCH, TACTILE (TAPE/MD)
S311	1-554-303-21	SWITCH, TACTILE (CD)
S312	1-554-303-21	SWITCH, TACTILE (TUNER)
S313	1-554-303-21	SWITCH, TACTILE (PHONO)
S315	1-554-303-21	SWITCH, TACTILE (-)
S316	1-554-303-21	SWITCH, TACTILE (MEMORY)
S317	1-554-303-21	SWITCH, TACTILE (SHIFT)
S318	1-554-303-21	SWITCH, TACTILE (GX215: -) (GX315/GX415: BAND)
S319	1-554-303-21	SWITCH, TACTILE (1)
S320	1-554-303-21	SWITCH, TACTILE (2)
S321	1-554-303-21	SWITCH, TACTILE (3)
S322	1-554-303-21	SWITCH, TACTILE (4)
S323	1-554-303-21	SWITCH, TACTILE (5)
S324	1-554-303-21	SWITCH, TACTILE (6)
S325	1-554-303-21	SWITCH, TACTILE (7)
S326	1-554-303-21	SWITCH, TACTILE (8)
S327	1-554-303-21	SWITCH, TACTILE (9)
S328	1-554-303-21	SWITCH, TACTILE (0)
S329	1-554-303-21	SWITCH, TACTILE (GX215, FM) (GX315/GX415 DIRECT)
S330	1-554-303-21	SWITCH, TACTILE (GX215, AM) (GX315/GX415 FM MODE)

< VIBRATOR >

X300	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)

****

Ref.No.	Part No.	Description			Remark
*	1-647-636-11	HP (1) BOARD			
		**********			
		< CONNECTOR >			
CNP704	1-691-160-11	PIN, CONNECTOR 3P			
**********					
*	1-647-637-11	HP (2) BOARD			
		**********			
		< JACK >			
J701	1-568-151-11	JACK (LARGE TYPE) (HEADPHONES)			
		< RESISTOR >			
R741	1-247-753-11	CARBON	1.2K	5% 1/2W	
R742	1-247-753-11	CARBON	1.2K	5% 1/2W	
R791	1-247-753-11	CARBON	1.2K	5% 1/2W	
R792	1-247-753-11	CARBON	1.2K	5% 1/2W	
**********					
*	1-648-997-11	JOINT (1) BOARD			
		**********			
		< CONNECTOR >			
*CNP404	1-750-384-11	CONNECTOR, BOARD TO BOARD 11P			
**********					
*	1-648-998-11	JOINT (2) BOARD			
		**********			
		< CONNECTOR >			
*CNJ402	1-750-383-11	CONNECTOR, BOARD TO BOARD 11P			
**********					
*	A-4369-230-A	MAIN BOARD, COMPLETE (GX215:AEP)			
*	A-4369-578-A	MAIN BOARD, COMPLETE (GX215:G)			
*	A-4369-554-A	MAIN BOARD, COMPLETE (GX215:EE)			
*	A-4369-564-A	MAIN BOARD, COMPLETE (GX315:AEP,UK)			
*	A-4369-229-A	MAIN BOARD, COMPLETE (GX315:G)			
*	A-4369-560-A	MAIN BOARD, COMPLETE (GX315:EE)			
*	A-4369-563-A	MAIN BOARD, COMPLETE (GX415:AEP)			
*	A-4369-227-A	MAIN BOARD, COMPLETE (GX415:G)			
		**********			
*	4-921-941-01	CUSHION (FL)			
*	4-943-107-11	HOLDER (FL TUBE)			
	4-812-134-00	RIVET NYLON, 3.5			
*	4-942-204-01	PLATE, GROUND			

Ref.No.	Part No.	Description			Remark
*	4-953-350-01	PLATE, GROUND			
		< CAPACITOR >			
C1	1-162-280-31	CERAMIC	82PF	10% 50V	(GX315/GX415)
C2	1-162-215-31	CERAMIC	47PF	5% 50V	(GX315/GX415)
C4	1-162-282-31	CERAMIC	100PF	10% 50V	(GX315/GX415)
C5	1-161-379-00	CERAMIC	0.01uF	20% 25V	(GX315/GX415)
C6	1-161-379-00	CERAMIC	0.01uF	20% 25V	(GX315/GX415)
C7	1-161-379-00	CERAMIC	0.01uF	20% 25V	(GX315/GX415)
C8	1-124-910-11	ELECT	47uF	20% 50V	(GX315/GX415)
C9	1-161-379-00	CERAMIC	0.01uF	20% 25V	(GX315/GX415)
C10	1-161-379-00	CERAMIC	0.01uF	20% 25V	(GX315/GX415)
C11	1-124-907-11	ELECT	10uF	20% 50V	(GX315/GX415)
C12	1-161-379-00	CERAMIC	0.01uF	20% 25V	
C14	1-161-379-00	CERAMIC	0.01uF	20% 25V	
C15	1-124-925-11	ELECT	2.2uF	20% 100V	(GX315/GX415)
C16	1-161-379-00	CERAMIC	0.01uF	20% 25V	(GX315/GX415)
C17	1-162-291-31	CERAMIC	560PF	10% 50V	(GX315/GX415)
C19	1-124-907-11	ELECT	10uF	20% 50V	(GX315/GX415)
C20	1-162-288-31	CERAMIC	330PF	10% 50V	(GX315/GX415)
C21	1-162-209-31	CERAMIC	27PF	5% 50V	(GX315/GX415)
C301	1-124-907-11	ELECT	10uF	20% 50V	
C302	1-162-215-31	CERAMIC	47PF	5% 50V	(EXCEPT G)
C302	1-162-283-31	CERAMIC	120PF	10% 50V (G)	
C303	1-124-907-11	ELECT	10uF	20% 50V	
C351	1-124-907-11	ELECT	10uF	20% 50V	
C352	1-162-215-31	CERAMIC	47PF	5% 50V	(EXCEPT G)
C352	1-162-283-31	CERAMIC	120PF	10% 50V (G)	
C353	1-124-907-11	ELECT	10uF	20% 50V	
C401	1-162-282-31	CERAMIC	100PF	10% 50V (G)	

MAIN

Ref.No.	Part No.	Description			Remark
C402	1-126-962-11	ELECT	3.3uF	20%	50V
C403	1-162-282-31	CERAMIC	100PF	10%	50V (EXCEPT G)
C403	1-162-286-31	CERAMIC	220PF	10%	50V (G)
C404	1-162-282-31	CERAMIC	100PF	10%	50V
C405	1-104-792-51	ELECT	33uF	20%	16V
C406	1-130-480-00	MYLAR	0.0056uF	5%	50V
C407	1-130-473-00	MYLAR	0.0015uF	5%	50V
C408	1-126-962-11	ELECT	3.3uF	20%	50V
C420	1-164-159-11	CERAMIC	0.1uF		50V
C422	1-124-477-11	ELECT	47uF	20%	25V (GX315/GX415)
C423	1-124-477-11	ELECT	47uF	20%	25V (GX315/GX415)
C424	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C425	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C426	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C427	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C429	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C430	1-162-294-31	CERAMIC	0.001uF	10%	50V
C431	1-137-364-11	FILM	0.001uF	5%	50V
C433	1-124-925-11	ELECT	2.2uF	20%	100V
C434	1-162-286-31	CERAMIC	220PF	10%	50V (G)
C435	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C437	1-124-907-11	ELECT	10uF	20%	50V
C451	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C452	1-126-962-11	ELECT	3.3uF	20%	50V
C453	1-162-282-31	CERAMIC	100PF	10%	50V (EXCEPT G)
C453	1-162-286-31	CERAMIC	220PF	10%	50V (G)
C454	1-162-282-31	CERAMIC	100PF	10%	50V
C455	1-104-792-51	ELECT	33uF	20%	16V
C456	1-130-480-00	MYLAR	0.0056uF	5%	50V
C457	1-130-473-00	MYLAR	0.0015uF	5%	50V
C458	1-126-962-11	ELECT	3.3uF	20%	50V
C474	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C475	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C476	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C477	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C479	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C484	1-162-286-31	CERAMIC	220PF	10%	50V (G)
C485	1-162-282-31	CERAMIC	100PF	10%	50V (G)
C701	1-124-927-11	ELECT	4.7uF	20%	100V
C702	1-162-286-31	CERAMIC	220PF	10%	50V
C703	1-102-116-00	CERAMIC	680PF	10%	50V
C704	1-124-477-11	ELECT	47uF	20%	25V (GX315/GX415)

Ref.No.	Part No.	Description			Remark
C705	1-164-039-11	CERAMIC	3PF	0.25PF	50V
C706	1-102-989-00	CERAMIC	68PF	5%	500V
C707	1-102-989-00	CERAMIC	68PF	5%	500V
C708	1-124-120-11	ELECT	220uF	20%	25V
C709	1-124-477-11	ELECT	47uF	20%	25V
C710	1-164-159-11	CERAMIC	0.1uF		50V
C711	1-164-159-11	CERAMIC	0.1uF		50V
C712	1-136-161-00	FILM	0.047uF	5%	50V
C713	1-136-161-00	FILM	0.047uF	5%	50V
C715	1-164-096-11	CERAMIC	0.01uF		50V (G)
C716	1-164-096-11	CERAMIC	0.01uF		50V (G)
C717	1-164-096-11	CERAMIC	0.01uF		50V (G)
C718	1-164-096-11	CERAMIC	0.01uF		50V (G)
C719	1-164-096-11	CERAMIC	0.01uF		50V (G)
C720	1-164-096-11	CERAMIC	0.01uF		50V (G)
C721	1-161-494-00	CERAMIC	0.022uF		25V (G)
C726	1-162-215-31	CERAMIC	47PF	5%	50V (EXCEPT G)
C726	1-162-219-31	CERAMIC	68PF	5%	50V (G)
C727	1-124-911-11	ELECT	220uF	20%	50V (GX215)
C727	1-124-919-11	ELECT	220uF	20%	63V (GX315/GX415)
C749	1-124-911-11	ELECT	220uF	20%	50V (GX215)
C749	1-124-919-11	ELECT	220uF	20%	63V (GX315/GX415)
C751	1-124-927-11	ELECT	4.7uF	20%	100V
C752	1-162-286-31	CERAMIC	220PF	10%	50V
C753	1-102-116-00	CERAMIC	680PF	10%	50V
C754	1-124-477-11	ELECT	47uF	20%	25V (GX315/GX415)
C755	1-164-039-11	CERAMIC	3PF	0.25PF	50V
C756	1-102-989-00	CERAMIC	68PF	5%	500V
C757	1-102-989-00	CERAMIC	68PF	5%	500V
C758	1-124-120-11	ELECT	220uF	20%	25V
C759	1-124-477-11	ELECT	47uF	20%	25V
C760	1-164-159-11	CERAMIC	0.1uF		50V
C761	1-124-472-11	ELECT	470uF	20%	10V
C762	1-136-161-00	FILM	0.047uF	5%	50V
C763	1-136-161-00	FILM	0.047uF	5%	50V
C765	1-164-096-11	CERAMIC	0.01F		50V (G)
C766	1-164-096-11	CERAMIC	0.01uF		50V (G)
C767	1-164-096-11	CERAMIC	0.01uF		50V (G)
C768	1-164-096-11	CERAMIC	0.01uF		50V (G)

Ref.No.	Part No.	Description		Remark
C769	1-164-096-11	CERAMIC	0.01uF	50V (G)
C770	1-164-096-11	CERAMIC	0.01uF	50V (G)
C771	1-161-494-00	CERAMIC	0.022uF	25V (G)
C776	1-162-215-31	CERAMIC	47PF 5%	50V (EXCEPT G)
C776	1-162-219-31	CERAMIC	68PF 5%	50V (G)
C951	1-108-702-11	MYLAR	0.068uF 10%	100V
C952	1-108-702-11	MYLAR	0.068uF 10%	100V
C953	1-128-506-11	ELECT	6800uF 20%	50V (GX215)
C953	1-128-591-21	ELECT	6800uF 20%	56V (GX315/GX415)
C954	1-128-506-11	ELECT	6800uF 20%	50V (GX215)
C954	1-128-591-21	ELECT	6800uF 20%	56V (GX315/GX415)
C955	1-124-478-11	ELECT	100uF 20%	25V
C956	1-124-910-11	ELECT	47uF 20%	50V
C957	1-124-477-11	ELECT	47uF 20%	25V
C958	1-124-910-11	ELECT	47uF 20%	50V
C959	1-124-907-11	ELECT	10uF 20%	50V
C960	1-161-494-00	CERAMIC	0.022uF	25V
C961	1-161-494-00	CERAMIC	0.022uF	25V
C962	1-124-927-11	ELECT	4.7uF 20%	100V
C975	1-124-477-11	ELECT	47uF 20%	25V
C976	1-124-477-11	ELECT	47uF 20%	25V
C977	1-124-903-11	ELECT	1uF 20%	50V
C978	1-124-464-11	ELECT	0.22uF 20%	50V
C979	1-124-902-00	ELECT	0.47uF 20%	50V
C980	1-124-903-11	ELECT	1uF 20%	50V
C981	1-161-494-00	CERAMIC	0.022uF	25V
C982	1-161-494-00	CERAMIC	0.022uF	25V (GX315/GX415)
C983	1-161-494-00	CERAMIC	0.022uF	25V (GX315/GX415)
C984	1-124-557-11	ELECT	1000uF 20%	25V

< CONNECTOR >

*CNJ102	1-568-845-11	SOCKET, CONNECTOR 31P	
CNJ701	1-573-095-11	SOCKET, CONNECTOR 15P	
*CNP113	1-750-384-11	CONNECTOR, BOARD TO BOARD 11P	
*CNP952	1-564-507-11	PLUG, CONNECTOR 4P (GX315/GX415)	
*CNP954	1-564-104-00	PIN, CONNECTOR (B3P-VH) 3P	
*CNP956	1-564-506-11	PLUG, CONNECTOR 3P	

< DIODE >

D1	8-719-987-63	DIODE	1N4148M (GX315/GX415)
D401	8-719-987-63	DIODE	1N4148M
D403	8-719-987-63	DIODE	1N4148M
D701	8-719-933-41	DIODE	HZS6C3L
D702	8-719-987-63	DIODE	1N4148M
D703	8-719-815-85	DIODE	1S1585
D704	8-719-987-63	DIODE	1N4148M
D705	8-719-987-63	DIODE	1N4148M
D751	8-719-933-41	DIODE	HZS6C3L
D752	8-719-987-63	DIODE	1N4148M
D753	8-719-815-85	DIODE	1S1585
D951	8-719-312-09	DIODE	RBA-402 (GX215)
D951	8-719-302-38	DIODE	RBV-602-01 (GX315/GX415)
D952	8-719-010-78	DIODE	UZ-13BSB
D953	8-719-002-33	DIODE	UZL-24L
D954	8-719-987-63	DIODE	1N4148M
D955	8-719-010-74	DIODE	UZ-12BSB
D956	8-719-010-29	DIODE	UZ-4.3BSB
D962	8-719-010-47	DIODE	UZ-6.2BSC
D963	8-719-933-41	DIODE	HZS6C3L
D964	8-719-985-53	DIODE	HZS4ALL
D965	8-719-987-63	DIODE	1N4148M
D966	8-719-024-99	DIODE	11ES2-NTA2B (GX315/GX415)
D967	8-719-024-99	DIODE	11ES2-NTA2B (GX315/GX415)
D968	8-719-024-99	DIODE	11ES2-NTA2B (GX315/GX415)
D969	8-719-024-99	DIODE	11ES2-NTA2B (GX315/GX415)
D970	8-719-987-63	DIODE	1N4148M (GX315/GX415)
D971	8-719-987-63	DIODE	1N4148M (GX315/GX415)
D976	8-719-987-63	DIODE	1N4148M (GX215)
D977	8-719-987-63	DIODE	1N4148M (GX215)

< IC >

IC1	8-759-169-99	IC	SAA6579 (GX315/GX415)
IC2	8-759-062-26	IC	LC7073 (GX315/GX415)
IC3	8-759-812-35	IC	LA1235 (GX315/GX415)
IC4	8-759-145-58	IC	uPC4558C (GX315/GX415)
IC306	8-759-634-50	IC	M5218AL
IC401	8-759-112-93	IC	uPC4570HA-1
IC402	8-759-805-14	IC	LC7822

< JACK >

J401	1-580-825-11	JACK, PIN 6P (TAPE 2 IN, TAPE 2 REC OUT, TV/LD AUDIO IN)
J402	1-573-028-21	JACK, PIN 4P (VIDEO AUDIO OUT, TAPE 1 /MD IN)
J403	1-691-887-11	JACK, PIN 6P (TAPE 1/MD REC OUT, CD, PHONO)

MAIN

Ref.No.	Part No.	Description	Remark
		< COIL >	
L1	1-410-521-11	INDUCTOR 100uH	(GX315/GX415)
L701	1-420-872-00	COIL, AIR CORE	
L751	1-420-872-00	COIL, AIR CORE	
		< TRANSISTOR >	
Q402	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q406	8-729-900-63	TRANSISTOR DTA124ES	
Q408	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q452	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q701	8-729-620-18	TRANSISTOR 2SA979-FG	
Q702	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q703	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q704	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q705	8-729-122-13	TRANSISTOR 2SA1221-K	
Q706	8-729-209-15	TRANSISTOR 2SD2012	
Q707	8-729-195-82	TRANSISTOR 2SC2958	
Q712	8-729-020-72	TRANSISTOR 2SD2438-OPY	(GX215)
Q712	8-729-020-29	TRANSISTOR 2SD2390-OPY	(GX315/GX415)
Q713	8-729-020-41	TRANSISTOR 2SB1587-OPY	(GX215)
Q713	8-729-020-25	TRANSISTOR 2SB1560-OPY	(GX315/GX415)
Q714	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q715	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q716	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q717	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q718	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q719	8-729-900-63	TRANSISTOR DTA124ES	
Q751	8-729-620-18	TRANSISTOR 2SA979-FG	
Q752	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q753	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q754	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q755	8-729-122-13	TRANSISTOR 2SA1221-K	
Q756	8-729-209-15	TRANSISTOR 2SD2012	
Q757	8-729-195-82	TRANSISTOR 2SC2958	
Q762	8-729-020-72	TRANSISTOR 2SD2438-OPY	(GX215)
Q762	8-729-020-29	TRANSISTOR 2SD2390-OPY	(GX315/GX415)
Q763	8-729-020-41	TRANSISTOR 2SB1587-OPY	(GX215)
Q763	8-729-020-25	TRANSISTOR 2SB1560-OPY	(GX315/GX415)
Q764	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q951	8-729-209-15	TRANSISTOR 2SD2012	
Q952	8-729-140-97	TRANSISTOR 2SB734-34	(GX215)
Q952	8-729-018-59	TRANSISTOR 2SB1375-LC	(GX315/GX415)
Q953	8-729-180-92	TRANSISTOR 2SD809-K	
Q954	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q955	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q956	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q957	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q958	8-729-900-36	TRANSISTOR DTC124ES	
Q959	8-729-904-39	TRANSISTOR DTC114TS	
Q960	8-729-119-78	TRANSISTOR 2SC2785-HFE	(GX315/GX415)
		< RESISTOR >	
R1	1-247-807-31	CARBON 100 5% 1/4W	(GX315/GX415)
R2	1-249-411-11	CARBON 330 5% 1/4W	(GX315/GX415)
R3	1-249-405-11	CARBON 100 5% 1/4W	(GX315/GX415)
R5	1-249-421-11	CARBON 2.2K 5% 1/4W	(GX315/GX415)
R6	1-249-441-11	CARBON 100K 5% 1/4W	(GX315/GX415)
R7	1-249-441-11	CARBON 100K 5% 1/4W	(GX315/GX415)
R8	1-249-426-11	CARBON 5.6K 5% 1/4W	(GX315/GX415)
R10	1-247-862-11	CARBON 20K 5% 1/4W	(GX315/GX415)
R302	1-247-887-00	CARBON 220K 5% 1/4W	
R303	1-247-887-00	CARBON 220K 5% 1/4W	
R305	1-249-416-11	CARBON 820 5% 1/4W	
R352	1-247-887-00	CARBON 220K 5% 1/4W	
R353	1-247-887-00	CARBON 220K 5% 1/4W	
R355	1-249-416-11	CARBON 820 5% 1/4W	
R401	1-249-411-11	CARBON 330 5% 1/4W	
R402	1-249-417-11	CARBON 1K 5% 1/4W	
R403	1-249-417-11	CARBON 1K 5% 1/4W	
R404	1-249-425-11	CARBON 4.7K 5% 1/4W	
R405	1-249-417-11	CARBON 1K 5% 1/4W	
R407	1-249-425-11	CARBON 4.7K 5% 1/4W	
R413	1-249-437-11	CARBON 47K 5% 1/4W	
R414	1-247-897-11	CARBON 560K 5% 1/4W	
R415	1-249-416-11	CARBON 820 5% 1/4W	
R416	1-247-897-11	CARBON 560K 5% 1/4W	
R417	1-249-437-11	CARBON 47K 5% 1/4W	
R418	1-249-417-11	CARBON 1K 5% 1/4W	
R419	1-247-897-11	CARBON 560K 5% 1/4W	
R420	1-249-417-11	CARBON 1K 5% 1/4W	(G)
R421	1-249-408-11	CARBON 180 5% 1/4W	
R425	1-249-425-11	CARBON 4.7K 5% 1/4W	
R426	1-249-437-11	CARBON 47K 5% 1/4W	
R427	1-249-437-11	CARBON 47K 5% 1/4W	
R430	1-249-437-11	CARBON 47K 5% 1/4W	
R431	1-249-425-11	CARBON 4.7K 5% 1/4W	
R432	1-247-883-00	CARBON 150K 5% 1/4W	
R434	1-249-425-11	CARBON 4.7K 5% 1/4W	
R436	1-249-417-11	CARBON 1K 5% 1/4W	
R437	1-249-437-11	CARBON 47K 5% 1/4W	
R438	1-249-429-11	CARBON 10K 5% 1/4W	
R439	1-249-437-11	CARBON 47K 5% 1/4W	
R440	1-249-437-11	CARBON 47K 5% 1/4W	
R441	1-249-413-11	CARBON 470 5% 1/4W	
R444	1-249-437-11	CARBON 47K 5% 1/4W	
R451	1-249-411-11	CARBON 330 5% 1/4W	
R452	1-249-417-11	CARBON 1K 5% 1/4W	

Ref.No.	Part No.	Description				Remark
R453	1-249-417-11	CARBON	1K	5%	1/4W	
R454	1-249-425-11	CARBON	4.7K	5%	1/4W	
R455	1-249-417-11	CARBON	1K	5%	1/4W	
R457	1-249-425-11	CARBON	4.7K	5%	1/4W	
R463	1-249-437-11	CARBON	47K	5%	1/4W	
R464	1-247-897-11	CARBON	560K	5%	1/4W	
R465	1-249-416-11	CARBON	820	5%	1/4W	
R466	1-247-897-11	CARBON	560K	5%	1/4W	
R467	1-249-437-11	CARBON	47K	5%	1/4W	
R468	1-249-417-11	CARBON	1K	5%	1/4W	
R469	1-247-897-11	CARBON	560K	5%	1/4W	
R470	1-249-417-11	CARBON	1K	5%	1/4W	(G)
R471	1-249-408-11	CARBON	180	5%	1/4W	
R481	1-249-425-11	CARBON	4.7K	5%	1/4W	
R486	1-249-417-11	CARBON	1K	5%	1/4W	
R499	1-247-807-31	CARBON	100	5%	1/4W	(GX215)
R701	1-249-417-11	CARBON	1K	5%	1/4W	
R702	1-249-434-11	CARBON	27K	5%	1/4W	
R703	1-249-435-11	CARBON	33K	5%	1/4W	
R704	1-249-421-11	CARBON	2.2K	5%	1/4W	
R705	1-249-426-11	CARBON	5.6K	5%	1/4W	
R706	1-249-414-11	CARBON	560	5%	1/4W	
R707	1-249-423-11	CARBON	3.3K	5%	1/4W	
R708	1-249-411-11	CARBON	330	5%	1/4W	
R709	1-249-409-11	CARBON	220	5%	1/4W	
R710	1-249-409-11	CARBON	220	5%	1/4W	
R711	1-249-409-11	CARBON	220	5%	1/4W	(GX215)
R711	1-247-811-31	CARBON	150	5%	1/4W	(GX315/GX415)
R712	1-249-434-11	CARBON	27K	5%	1/4W	(GX215)
R712	1-247-864-11	CARBON	24K	5%	1/4W	(GX315/GX415)
R713	1-249-397-11	CARBON	22	5%	1/4W	
R714	1-249-428-11	CARBON	8.2K	5%	1/4W	
R715	1-249-409-11	CARBON	220	5%	1/4W	
R716	1-249-397-11	CARBON	22	5%	1/4W	
R717	1-249-393-11	CARBON	10	5%	1/4W	
R718	1-249-393-11	CARBON	10	5%	1/4W	
R720	1-249-424-11	CARBON	3.9K	5%	1/4W	
⚠R726	1-208-602-11	WIREWOUND	0.22	10%	2W	F
⚠R727	1-208-602-11	WIREWOUND	0.22	10%	2W	F
R728	1-249-425-11	CARBON	4.7K	5%	1/4W	
R729	1-249-431-11	CARBON	15K	5%	1/4W	
R730	1-249-429-11	CARBON	10K	5%	1/4W	
R731	1-249-434-11	CARBON	27K	5%	1/4W	
R732	1-249-417-11	CARBON	1K	5%	1/4W	
R733	1-249-435-11	CARBON	33K	5%	1/4W	
R734	1-249-427-11	CARBON	6.8K	5%	1/4W	
R735	1-249-397-11	CARBON	22	5%	1/4W	
R736	1-249-397-11	CARBON	22	5%	1/4W	
R737	1-249-393-11	CARBON	10	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R738	1-249-393-11	CARBON	10	5%	1/4W	
R739	1-249-412-11	CARBON	390	5%	1/4W	(GX215)
R739	1-249-442-11	CARBON	510	5%	1/4W	(GX315/GX415)
R744	1-249-429-11	CARBON	10K	5%	1/4W	
R745	1-249-399-11	CARBON	33	5%	1/4W	
R746	1-249-393-11	CARBON	10	5%	1/4W	(G)
R747	1-249-393-11	CARBON	10	5%	1/4W	(G)
R748	1-249-393-11	CARBON	10	5%	1/4W	(G)
R749	1-249-399-11	CARBON	33	5%	1/4W	
R751	1-249-417-11	CARBON	1K	5%	1/4W	
R752	1-249-434-11	CARBON	27K	5%	1/4W	
R753	1-249-435-11	CARBON	33K	5%	1/4W	
R754	1-249-421-11	CARBON	2.2K	5%	1/4W	
R755	1-249-426-11	CARBON	5.6K	5%	1/4W	
R756	1-249-414-11	CARBON	560	5%	1/4W	
R757	1-249-423-11	CARBON	3.3K	5%	1/4W	
R758	1-249-411-11	CARBON	330	5%	1/4W	
R759	1-249-409-11	CARBON	220	5%	1/4W	
R760	1-249-409-11	CARBON	220	5%	1/4W	
R761	1-249-409-11	CARBON	220	5%	1/4W	(GX215)
R761	1-247-811-31	CARBON	150	5%	1/4W	(GX315/GX415)
R762	1-249-434-11	CARBON	27K	5%	1/4W	(GX215)
R762	1-247-864-11	CARBON	24K	5%	1/4W	(GX315/GX415)
R763	1-249-397-11	CARBON	22	5%	1/4W	
R764	1-249-428-11	CARBON	8.2K	5%	1/4W	
R765	1-249-409-11	CARBON	220	5%	1/4W	
R766	1-249-397-11	CARBON	22	5%	1/4W	
R767	1-249-393-11	CARBON	10	5%	1/4W	
R768	1-249-393-11	CARBON	10	5%	1/4W	
R770	1-249-424-11	CARBON	3.9K	5%	1/4W	
⚠R776	1-208-602-11	WIREWOUND	0.22	10%	2W	F
⚠R777	1-208-602-11	WIREWOUND	0.22	10%	2W	F
R778	1-249-425-11	CARBON	4.7K	5%	1/4W	
R779	1-249-431-11	CARBON	15K	5%	1/4W	
R781	1-249-433-11	CARBON	22K	5%	1/4W	
R785	1-249-397-11	CARBON	22	5%	1/4W	
R786	1-249-397-11	CARBON	22	5%	1/4W	
R787	1-249-393-11	CARBON	10	5%	1/4W	
R788	1-249-393-11	CARBON	10	5%	1/4W	
R790	1-249-429-11	CARBON	10K	5%	1/4W	
R794	1-249-412-11	CARBON	390	5%	1/4W	(GX215)
R794	1-249-442-11	CARBON	510	5%	1/4W	(GX315/GX415)
R796	1-249-393-11	CARBON	10	5%	1/4W	(G)
R797	1-249-393-11	CARBON	10	5%	1/4W	(G)
R798	1-249-393-11	CARBON	10	5%	1/4W	(G)
R799	1-249-412-11	CARBON	390	5%	1/4W	(GX215)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MAIN POWER

Ref.No.	Part No.	Description			Remark
R799	1-249-442-11	CARBON	510	5%	1/4W (GX315/GX415)
R801	1-249-415-11	CARBON	680	5%	1/4W
R804	1-247-895-00	CARBON	470K	5%	1/4W
R851	1-249-415-11	CARBON	680	5%	1/4W
R854	1-247-895-00	CARBON	470K	5%	1/4W
⚠R950	1-215-908-00	METAL OXIDE	33	5%	3W F (GX215)
⚠R950	1-215-909-11	METAL OXIDE	47	5%	3W F (GX315/GX415)
⚠R951	1-215-908-00	METAL OXIDE	33	5%	3W F (GX215)
⚠R951	1-215-909-11	METAL OXIDE	47	5%	3W F (GX315/GX415)
R952	1-247-743-11	CARBON	220	5%	1/2W
R953	1-249-422-11	CARBON	2.7K	5%	1/4W
R954	1-249-423-11	CARBON	3.3K	5%	1/4W
⚠R955	1-215-908-00	METAL OXIDE	33	5%	3W F (GX215)
⚠R955	1-216-473-11	METAL OXIDE	56	5%	3W F (GX315/GX415)
R956	1-249-405-11	CARBON	100	5%	1/4W
R957	1-249-410-11	CARBON	270	5%	1/4W
R958	1-249-410-11	CARBON	270	5%	1/4W
R959	1-249-441-11	CARBON	100K	5%	1/4W
R960	1-249-429-11	CARBON	10K	5%	1/4W
R963	1-249-395-11	CARBON	15	5%	1/4W
R964	1-249-423-11	CARBON	3.3K	5%	1/4W
R965	1-249-437-11	CARBON	47K	5%	1/4W
R966	1-249-429-11	CARBON	10K	5%	1/4W
R967	1-249-429-11	CARBON	10K	5%	1/4W
R968	1-249-417-11	CARBON	1K	5%	1/4W
R969	1-249-429-11	CARBON	10K	5%	1/4W
R970	1-249-426-11	CARBON	5.6K	5%	1/4W
R971	1-249-417-11	CARBON	1K	5%	1/4W
R972	1-249-426-11	CARBON	5.6K	5%	1/4W
R973	1-247-830-11	CARBON	910	5%	1/4W (GX315/GX415)
R974	1-249-425-11	CARBON	4.7K	5%	1/4W (GX315/GX415)
R999	1-249-397-11	CARBON	22	5%	1/4W (GX315/GX415)
		< VARIABLE RESISTOR >			
RV1	1-223-240-11	RES, ADJ, CARBON 22K (GX315/GX415)			
		< RELAY >			
RY401	1-515-614-11	RELAY			
RY701	1-515-533-11	RELAY			
		< TERMINAL >			
TM1	1-537-488-11	TERMINAL BOARD (ANTENNA)			
TM701	1-537-376-11	TERMINAL BOARD (SPEAKERS)			

Ref.No.	Part No.	Description			Remark
		< ENCAPSULATED COMPONENT >			
TU1	1-239-865-11	ENCAPSULATED COMPONENT (AEP, UK)			
TU1	1-239-562-11	ENCAPSULATED COMPONENT (G)			
TU1	1-239-864-11	ENCAPSULATED COMPONENT (EE)			
		< VIBRATOR >			
X1	1-579-900-21	VIBRATOR, CRYSTAL (GX315/GX415)			(4.332MHz)
X2	1-577-358-21	VIBRATOR, CERAMIC (GX315/GX415) (4MHz)			
**********					
*	1-647-638-11	POWER BOARD **********			
		< CAPACITOR >			
⚠C901	1-161-744-51	CERAMIC	0.01uF		400V (GX315/GX415)
C902	1-161-741-00	CERAMIC	0.001uF	10%	400V (G)
C903	1-161-741-00	CERAMIC	0.001uF	10%	400V (G)
C911	1-164-159-11	CERAMIC	0.1uF		50V (GX315/GX415:G)
C912	1-164-159-11	CERAMIC	0.1uF		50V (GX315/GX415:G)
		< CONNECTOR >			
⚠CNP901	1-564-321-00	PIN, CONNECTOR 2P			
⚠CNP902	1-580-230-11	PIN, CONNECTOR (PC BOARD) 3P			
⚠CNP903	1-580-230-11	PIN, CONNECTOR (PC BOARD) 3P			(GX315:AEP,G,EE/GX415)
*CNP951	1-564-507-11	PLUG, CONNECTOR 4P (GX315/GX415)			
		< DIODE >			
D901	8-719-987-63	DIODE 1N4148M (GX315/GX415)			
		< FUSE >			
⚠F902	1-532-285-00	FUSE T1.25AL/250V (GX215)			
⚠F902	1-532-259-00	FUSE T1.6AL/250V (GX315/GX415)			
⚠F903	1-532-259-00	FUSE T1.6AL/250V (GX315/GX415)			
		< FUSE HOLDER >			
FH902	1-533-293-11	FUSE HOLDER			
FH903	1-533-293-11	FUSE HOLDER (GX315/GX415)			
FH952	1-533-293-11	FUSE HOLDER			
FH953	1-533-293-11	FUSE HOLDER (GX315/GX415)			
		< RELAY >			
⚠RY901	1-515-720-11	RELAY (GX315/GX415)			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

POWER | STANDBY | SW (1) | SW (2) | SW (3) | TONE | TRANSFORMER

Ref.No.	Part No.	Description			Remark
		< TRANSFORMER >			
⚠T902	1-450-358-11	TRANSFORMER, POWER (GX315/GX415)			
**********					
*	1-654-001-11	STANDBY BOARD (GX315/GX415)			
		**********			
		< CONNECTOR >			
*CNP107	1-565-295-11	PLUG, CONNECTOR 4P (GX315/GX415)			
		< SWITCH >			
S137	1-554-303-21	SWITCH, TACTILE (GX315/GX415) (POWER)			
**********					
*	1-647-633-11	SW (1) BOARD			
		**********			
		< CONNECTOR >			
CNP701	1-573-109-11	PIN, CONNECTOR 15P			
**********					
*	1-647-634-11	SW (2) BOARD			
		**********			
**********					
*	1-647-635-11	SW (3) BOARD			
		**********			
		< CONNECTOR >			
CNP702	1-691-173-11	CONNECTOR (BOARD TO BOARD) 3P			
		< SWITCH >			
S701	1-571-485-11	SWITCH, PUSH (2 KEY) (SPEAKERS A/B)			
**********					
*	1-647-632-11	TONE BOARD			
		**********			
		< CAPACITOR >			
C501	1-130-489-00	MYLAR	0.033uF	5%	50V
C502	1-124-250-00	ELECT	0.15uF	20%	50V
C503	1-130-481-00	MYLAR	0.0068uF	5%	50V
C504	1-137-441-11	FILM	0.027uF	5%	50V
C551	1-130-489-00	MYLAR	0.033uF	5%	50V
C552	1-124-250-00	ELECT	0.15uF	20%	50V
C553	1-130-481-00	MYLAR	0.0068uF	5%	50V
C554	1-137-441-11	FILM	0.027uF	5%	50V
		< CONNECTOR >			
*CNP109	1-566-968-11	HOUSING, CONNECTOR(PC BOARD)6P			
		< RESISTOR >			
R501	1-249-429-11	CARBON	10K	5%	1/4W
R502	1-249-422-11	CARBON	2.7K	5%	1/4W
R507	1-249-415-11	CARBON	680	5%	1/4W
R508	1-247-903-00	CARBON	1M	5%	1/4W
R509	1-247-903-00	CARBON	1M	5%	1/4W
R510	1-247-903-00	CARBON	1M	5%	1/4W
R551	1-249-429-11	CARBON	10K	5%	1/4W
R552	1-249-422-11	CARBON	2.7K	5%	1/4W
R557	1-249-415-11	CARBON	680	5%	1/4W
R558	1-247-903-00	CARBON	1M	5%	1/4W
R559	1-247-903-00	CARBON	1M	5%	1/4W
R560	1-247-903-00	CARBON	1M	5%	1/4W
		< VARIABLE RESISTOR >			
RV401	1-223-362-11	RES, VAR, CARBON 100K/100K (BASS)			
RV402	1-223-363-11	RES, VAR, CARBON 125K/125K (TREBLE)			
RV403	1-238-965-21	RES, VAR, CARBON 100K/100K (BALANCE)			
**********					
*	1-647-631-11	TRANSFORMER BOARD			
		**********			
		< CONNECTOR >			
*CNP955	1-564-243-11	PIN, CONNECTOR 6P			
		< CAPACITOR >			
C921	1-164-159-11	CERAMIC	0.1uF		50V (G)
C922	1-164-159-11	CERAMIC	0.1uF		50V (G)
		< TRANSFORMER >			
⚠T901	1-426-733-11	TRANSFORMER, POWER (GX215)			
⚠T901	1-426-734-11	TRANSFORMER, POWER (GX315:AEP,G,EE)			
⚠T901	1-426-735-11	TRANSFORMER, POWER (GX415)			
⚠T901	1-426-986-11	TRANSFORMER, POWER (GX315:UK)			
**********					

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

VOL

Ref.No.	Part No.	Description			Remark
*	A-4369-558-A	VOL BOARD, COMPLETE (GX215)			
*	A-4369-228-A	VOL BOARD, COMPLETE (GX315)			
*	A-4369-562-A	VOL BOARD, COMPLETE (GX415)			
		**********			
		< CAPACITOR >			
C436	1-137-371-11	FILM	0.015uF	5%	50V
C438	1-124-927-11	ELECT	4.7uF	20%	100V (GX315/GX415)
C439	1-124-927-11	ELECT	4.7uF	20%	100V (GX315/GX415)
C486	1-137-371-11	FILM	0.015uF	5%	50V
C505	1-162-206-31	CERAMIC	20PF	5%	50V
C506	1-124-925-11	ELECT	2.2uF	20%	100V
C507	1-162-196-31	CERAMIC	5.6PF	10%	50V
C508	1-126-962-11	ELECT	3.3uF	20%	50V
C511	1-124-464-11	ELECT	0.22uF	20%	50V
C513	1-126-962-11	ELECT	3.3uF	20%	50V
C516	1-124-477-11	ELECT	47uF	20%	25V
C517	1-124-477-11	ELECT	47uF	20%	25V
C555	1-162-206-31	CERAMIC	20PF	5%	50V
C556	1-124-925-11	ELECT	2.2uF	20%	100V
C557	1-162-196-31	CERAMIC	5.6PF	10%	50V
C558	1-126-962-11	ELECT	3.3uF	20%	50V
C563	1-126-962-11	ELECT	3.3uF	20%	50V
		< CONNECTOR >			
*CNP103	1-750-383-11	CONNECTOR, BOARD TO BOARD 11P			
*CNP401	1-566-971-11	PIN, CONNECTOR (PC BOARD) 6P			
*CNP402	1-566-972-11	PIN, CONNECTOR (PC BOARD) 7P			
		< DIODE >			
D404	8-719-987-63	DIODE 1N4148M			
		< IC >			
IC403	8-759-112-93	IC uPC4570HA-1			
		< TRANSISTOR >			
Q404	8-729-202-67	TRANSISTOR 2SK246-GR3			
Q454	8-729-202-67	TRANSISTOR 2SK246-GR3			
		< RESISTOR >			
R445	1-247-858-11	CARBON	13K	5%	1/4W
R495	1-247-858-11	CARBON	13K	5%	1/4W
R503	1-249-441-11	CARBON	100K	5%	1/4W
R504	1-249-432-11	CARBON	18K	5%	1/4W
R505	1-249-438-11	CARBON	56K	5%	1/4W
R506	1-249-441-11	CARBON	100K	5%	1/4W
R511	1-249-441-11	CARBON	100K	5%	1/4W
R513	1-247-903-00	CARBON	1M	5%	1/4W
R514	1-247-807-31	CARBON	100	5%	1/4W
R515	1-247-807-31	CARBON	100	5%	1/4W
R553	1-249-441-11	CARBON	100K	5%	1/4W
R554	1-249-432-11	CARBON	18K	5%	1/4W
R555	1-249-438-11	CARBON	56K	5%	1/4W
R556	1-249-441-11	CARBON	100K	5%	1/4W
		< VARIABLE RESISTOR >			
RV701	1-241-852-11	RES, VAR, CARBON 100K/100K (GX215) (VOLUME)			
RV701	1-223-714-11	RES, VAR, CARBON 100K/100K (GX315/GX415) (VOLUME)			
		**********			
		MISCELLANEOUS			
		**********			
8	1-696-456-11	WIRE (FLAT TYPE) (31 CORE)			
⚠CNJ901	1-696-570-21	CORD, POWER (UK)			
⚠CNJ901	1-575-651-11	CORD, POWER (EXCEPT UK)			
⚠CNJ902	1-526-794-11	OUTLET, AC (GX315:AEP,G,EE/GX415)			
		**********			
		ACCESSORIES & PACKING MATERIALS			
		**********			
	1-467-639-11	REMOTE COMMANDER (RM-U141) (GX315/GX415)			
	1-501-374-11	ANTENNA, LOOP			
	1-501-594-11	ANTENNA (FM) (GX215/GX315:AEP,UK,EE/GX415:AEP)			
	3-758-301-11	MANUAL, INSTRUCTION (ENGLISH,FRENCH, GERMAN,DUTCH) (AEP,UK)			
	3-758-301-41	MANUAL, INSTRUCTION (SPANISH,SWEDISH, DANISH,FINNISH) (AEP)			
	3-758-301-51	MANUAL, INSTRUCTION (GERMAN) (G)			
	3-758-301-61	MANUAL, INSTRUCTION (ENGLISH,PORTUGUESE) (EE)			
*	4-952-676-01	CUSHION			
*	4-967-035-01	INDIVIDUAL CARTON (GX215)			
*	4-967-037-01	INDIVIDUAL CARTON (GX315)			
*	4-967-039-01	INDIVIDUAL CARTON (GX415)			
	2-181-754-01	LID, BATTERY (for RM-U141)			
		**********			
		HARDWARE LIST			
		**********			
#1	7-682-548-04	SCREW +BVTT 3X8 (S)			
#2	7-682-548-09	SCREW +BVTT 3X8 (S)			
#3	7-682-547-09	SCREW +BVTT 3X6 (S)			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description	Remark
#4	7-682-560-04	SCREW +BVTT 4X6 (S)	
#5	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#6	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	
#7	7-621-849-00	SCREW, TAPPING	